

ROBERT PROCTOR
THE PRINTING OF GREEK
IN THE 15TH CENTURY

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1966

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PREFACE

I CANNOT let this book go forth without an apology to my readers, in that I have ventured to attempt a work dealing to a very large extent with technical details, without that knowledge of printing which can only be acquired by practical experience. In this respect I owe much to the kindness of Mr Horace Hart, the Controller of the Oxford University Press, who made many obscure points clear to me by ocular demonstration.

The greatest care has been taken to make the illustrations facsimiles as exact as possible; but it will often be found that minute indications to which I have drawn attention in the text are not visible in the reproductions. I must ask those who wish to study the matter closely to turn to the originals in these instances, and to remember that in the first printed books Greek type generally printed with an exceptional lack of sharpness, and that since even the best process blocks magnify and harden any defect due to imperfection of inking or presswork, while they almost always thicken the lines to some extent, the appearance of the type is sometimes materially altered.

Mr E. Gordon Duff gave me valuable help with the unique books in the John Rylands Library, especially in connexion with the photograph from the *Batrachomomachia* shown in plate VII. To him, and to the other friends by whose knowledge and advice I have profited, my best thanks are due.

R. P.

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THE PRINTING OF GREEK IN THE FIFTEENTH CENTURY

I.

IN the present essay, after a short sketch of the history of Hellenic culture in Italy up to the time when the printing press began its work, I propose to give a general survey of the early Greek press, touching on the principal groups of types, their relation to the writing hands on which they are based, the special difficulties which the printers had to overcome, and their methods and technique, where they differ from the usual practice of the time. I shall then attempt to enumerate and classify the Greek types used by the printers of Latin books up to the year 1476, when the first book printed wholly in Greek made its appearance. This will be followed by a chapter devoted to the Greek printed books from 1476 to the end of the century, preceded by a short list of these books in the order in which they are described. Lastly will come notes on a few of the founts used in later editions of Latin books, especially those produced in the smaller towns, and some mention, in the shortest form, of the first Greek printing in other countries—Germany, the Netherlands, France, Spain, England.

The illustrations, like the books, fall into three divisions, though the arrangement is somewhat different. First come representations of the types used by the Italian printers in Latin books up to 1476; these I have endeavoured to make as complete as possible, and I hope that few early founts of importance have escaped me; but those who know the difficulty of searching a whole literature for isolated words will excuse omissions. The second and principal series, which is, with one exception, placed together at the end of the book, contains facsimiles of every known type used in a Greek book, that

Division of
the work.
The text.

The plates.

is, a book in which the text is Greek, whether it be accompanied by a Latin translation or not, up to the year 1500. The third series is more composite. It consists of (a) selected typical specimens of the Greek type found in Latin books by Italian printers from 1477 to 1500; (b) the first types of the same class in other countries; (c) a few examples of notable sixteenth-century founts which are described in the text.

Analyses.

To the plates of the second series I have added what I believe to be a new feature, in the shape of an analysis, appended to each, of all the different letters or sorts found in the text therein reproduced. These analyses are in certain cases only part of a larger plan, where I have attempted, always very imperfectly, no doubt, to draw up a list of all the sorts included in the type in question, with the object of indicating the nature of the fount, or the relative size and complexity of the case with which the compositor had to deal. I have done this chiefly where a fount is both important in itself or representative of a class, and at the same time the books printed in it are of sufficiently small volume to be analysed without the excessive toil involved in the minute examination of a large mass of letters. Thus, in order to give some idea of a type of the later or Aldine class, I have chosen the type of Bissolus and Mangius in its first state, rather than one of the Aldine founts or that of Kallierges, because it is found only in two small books. In other instances, when a type is used first in a small book, and afterwards in a larger one without alteration, as the lower-case letters of Lorenzo di Alopa with which the Apollonios of Rhodes and the Lucian of 1496 are printed, I have enumerated only the sorts found in the smaller of the two books. Again, if one fount is based on another, even if it be of comparatively small extent, such as the second Milano type on the first, I have not given more than the letters which occur on the page photographed; nor have I given a list of the variations in a recast type, such as that of the Homer of 1488 or the Vicenza type of 1490, when the original founts (Milano 1476, or Vicenza 1489) have been set out in full. These analyses must be accepted with very large allowances on the score of accuracy or completeness, but, so far as concerns the plates themselves, the reader will have the remedy in his own hands; in any case, the plan seemed to me likely to be of use both to students of the books or of Greek printing generally, and to those engaged in

the good cause of trying to raise modern Greek founts from the mire of dull ugliness in which they are for the most part sunk. Thus much being premised, I will proceed to my subject-matter.

In an essay which deals with the printing of Greek almost entirely from its technical side, there is little need to describe in any detail the growth of that order of things which made it possible to produce books printed in that language with reasonable hope of profit. The facts are well known and easily accessible; they form part of the history of the Renaissance movement, and as such may be studied in the works dealing with that period. But a short summary of some kind is desirable, not only to enable the reader to obtain a clearer view of the matter in hand in its bearings on literature generally, but also because many of the men chiefly concerned in the Hellenic revival were the authors or editors of the books chosen by the printers, or were the teachers of the younger generation of scholars who set the printers to work, or revised and corrected the texts as they passed through the press.

All the authorities are agreed that the first Italian of eminence to study Greek was Boccaccio, at whose invitation his teacher, the Calabrian Leontius Pilatus, came to Florence, and delivered lectures on the Greek language during the years 1361 to 1364. Though his stay was a short one, Leontius opened the eyes of the cultured Florentines, who began to collect Greek manuscripts; these were imported in large numbers, and in this way, there can be little doubt, many treasures have been preserved to us which would otherwise have been lost altogether. This measure was due in great part to the wealth and enterprise of Palla Strozzi, who also in 1396 induced the Signoria to write a letter to Manouel Chrusoloras, offering him the Greek chair for ten years at an annual salary of one hundred florins. Chrusoloras, who is connected with the early press by his *Erotemata*, the book most frequently printed of all Greek books in the fifteenth century, was at that time a teacher of Greek at Constantinople, where Guarinus of Verona, afterwards his successor at Florence, was one of his pupils. A few years before this time Chrusoloras had visited Italy as an envoy from the Emperor, and though his mission was unsuccessful, his fame as a teacher induced many to resort to Venice to hear him. One of these, Jacobus Angelus, returned with Chrusoloras to Constantinople, and it was he who was

mainly instrumental in persuading his master to accept the invitation of the Florentine Signoria. After three years, however, Chrusoloras left Florence, and joined the Emperor at Milano. He continued in his service for some ten years, during which he visited several countries, including England, it is believed in 1405 or 1406. In 1414 he accompanied the Pope (John XXIII) to the council of Konstanz, and died there in the following year, being buried in the Dominican monastery, now the Insel-Hôtel.

His pupils.

Great as was the influence of Chrusoloras himself on Hellenic learning, it was greater still from the celebrity of his pupils. It was the same with all the Hellenic professors of the time; themselves at best tolerable grammarians or copyists, with little or none of the higher feeling towards literature, they succeeded in creating through the eager enthusiasm of their hearers a distinct school of humanists of wider culture and larger outlook than themselves. Even if their learning and polish was but skin-deep, or chiefly manifested in a strong tendency to virulent and scurrilous abuse of one another, they were men who succeeded in saving and in a measure making known what was left of the ancient Hellenic literature. Besides Guarinus, Chrusoloras numbered among his pupils Giovanni Aurispa, the translator of Hierokles, Francesco Filelfo, Niccolo Niccoli, celebrated for his library (in the purchase of which he ruined himself), Lionardo Bruni of Arezzo, Omnibonus Leonicens, the elder Vergerius, Gregorius Tifernas, Giannozzo Manetti, and Ambrogio Traversari, who played an important part in the council of Florence. Aurispa and Filelfo, not content with what they could obtain in Italy, went to Constantinople to pursue their studies. Aurispa returned in 1423, bringing 238 manuscripts with him. Eugenius IV, who patronized Hellenic learning, appointed Aurispa Apostolic Secretary; and at the council held at Florence in 1438 to seek a reunion between the Eastern and Western Churches, he acted as interpreter between the Greeks and the Latins. The council was attended by a very large number of Greek statesmen and scholars, and gave the greatest impetus to Hellenic studies in Italy that they had yet received, popularising them for the first time among literati of the second rank. It was the presence of these Greeks, and especially of the venerable Georgios Gemistos, called Plethon, that led to the foundation of the Platonic Academy, and to the special education of Marsilius Ficinus

Aurispa.

in connexion with it. Filelfo went out to Constantinople in 1419 Filelfo. at the age of 21, as secretary to the Venetian Consulate, worked at Greek under Ioannes Chrusoloras there, and married his daughter. He afterwards became professor of Greek at Florence, where he became an opponent of the policy of Cosimo de' Medici. Cosimo, who was after Palla Strozzi the great patron of Hellenism at Florence, placed politics before letters, and in 1433 tried to assassinate Filelfo, besides banishing Palla Strozzi in the next year. Strozzi retired to Padova, and there continued his support of Greek scholars, notably Ioannes Arguopoulos and Andronikos Kallistos. Of Arguopoulos Arguro- nothing is known between 1441, when he was with Strozzi, and poulos. 1456, when Cosimo appointed him Greek professor at Florence. He held this post for fifteen years, then went to Rome (where his lectures were attended by Reuchlin), and died there at the age of seventy. Kallistos was held to be second in learning to Theodoros Gaza only. Kallistos. The life was an unhappy one. After the death of Palla Strozzi in 1462, he taught Greek at the University of Bologna; thence he went to Rome in 1469; driven from Rome by poverty, he moved on to Florence, where Poliziano, who was his most eminent pupil, endeavoured to obtain a fixed salary for him from Lorenzo de' Medici. The application was apparently unsuccessful; in 1475 Kallistos was compelled to sell his manuscripts at Milano to obtain sufficient money to journey to Paris. Fate was still against him, and the next year he died, poor and ἔρημος φίλων, in London.

Theodoros Gaza, just mentioned, whose grammar was one of the Gaza. first books printed by Aldus Manutius, was a native of Thessalonike. He came to Italy between 1430 and 1440, and after studying Latin at Mantova under Vittorino da Feltre, taught Greek at Pavia, and afterwards at Ferrara. In 1450 or 1451 he entered the Pope's service, and became a close friend of Bessarion until the death of Nicholas V in 1455. From 1455 to 1458 he lived at Naples, but lived in retirement from the death of king Alfonso till 1464, when Paul II summoned him back to Rome. After Bessarion's death in 1472 he left Rome finally, and died in 1475.

In the days of Chrusoloras, and for some twenty or thirty years Second later, the chief object of those who had mastered the Greek language period. was to secure from destruction the treasures of Hellenic literature. But by the middle of the fifteenth century the movement had passed

into other channels, and scholars were devoting their energies to the dissemination of that which the earlier generation had rescued from the Turk. This was done partly by making copies of the manuscripts, a task to which most of the Greek teachers of this period, Kallistos, Gaza, Demetrios Laskaris, Chalkondulas, actively devoted themselves; partly by means of translations into Latin, which multiplied exceedingly at this period, chiefly owing to the enthusiastic patronage of Nicholas V, who collected at Rome a large number of scholars of both nations, including among the Greeks Gaza, and Georgios of Trebizond, who came to Italy in 1420, and had taught Greek at Florence, and among the Italians Giannozzo Manetti, who had been made Secretary to the Pope, Guarinus of Verona, Lorenzo Valla, Poggio, Perottus, Tortellius, Petrus Candidus and Gregorius Tifernas. All were busily engaged in translating; and to their efforts, as well as to those of Lionardo Bruni, his pupils Rinuccini and Acciaiuoli, to Carlo Marsuppini, Filelfo and others, we owe the surprising list of Latin versions from the Greek which the Italian printing presses issued during their first years. Didot, on page xliii of his *Alde Manuce*, enumerates forty-three works by twenty-one different authors as printed up to 1492, and his list is very incomplete.

Third period. With the death of Nicholas V the second period of the Hellenic revival, the age of the pupils of Chrusoloras, may be said to end. The third period, which concerns us most directly, was not a time of literary productiveness. The rise of the press turned the attention of scholars to the emendation of the Latin and Greek classics, and the few names of note which emerge are those of able and industrious editors rather than of writers. Among the Hellenic editors four are most prominent—Demetrios Chalkondulas, Konstantinos Laskaris, Ioannes or Janus Laskaris, and Markos Mousouros, three of whom were closely connected with the early presses. Demetrios Chalkondulas or Chalkokondulas, of a noble Athenian family, born in 1424, came to Italy in 1447, and after a visit to Rome taught Greek at Perugia, among his pupils there being Campanus, afterwards bishop of Teramo, who has left us a panegyric of his master. Thirteen years later we find him Greek professor at Padova, at an annual salary of 400 florins, and in 1471 he succeeded Arguopoulos at Florence. Here he remained for twenty years, the poet Tarchaniota Marullus being among his friends, and Poliziano the most brilliant of his

Demetrios
Chalkon-
dulas.

disciples. While at Florence he edited the great Homer of 1488, and when he moved to Milano in 1492 he seems to have induced Heinrich Scinzenzeler to establish a Greek press, from which issued the next year the orations of Isokrates under his supervision, and his own Erotemata, together with two other grammatical treatises. Similarly in 1498-99, he patronised Bissolus and Mangius when they fled from Venice, and edited for them the great Soudas, the largest Greek book printed in the fifteenth century. He remained at Milano till his death in 1511, and a monument was erected there to his memory by his pupil Trissino.

Both as author and editor, Chalkondulas was closely connected with the early press, and in the second capacity he stands easily ahead of his contemporaries. It was quite otherwise with the man who was his only serious rival as a teacher, Konstantinos Laskaris, whose grammar received the honour of being the first entirely Greek book printed. Laskaris was a Byzantine, and was nineteen when the Turks took Constantinople and made him prisoner. After being ransomed he lived for some time at Rhodes, but in 1460 he was at Milano, teaching the language and writing Greek manuscripts. Five years after this Ferdinand I summoned him to Naples, but he was not successful there, and sailed for home. When by an accident the ship touched at Messina, Laskaris found an opening for himself, remained there, and was appointed to one of the professorships which had been established in 1462 for the instruction of the Basilian monks in Sicily. He spent the rest of his life at Messina, and died of the plague in 1501, leaving a large collection of manuscripts, seventy-six of which are now in the National Library at Madrid. Laskaris seems, except as author, to have had no connexion with the press; as a diligent copyist he may have scorned the printed book, though he possessed a copy of the Milano Soudas, which he left in his will to a Sicilian monastery. Probably however the remoteness of Messina from the places where Greek printing was carried on, which were all in North Italy, is sufficient to account for the fact. The interesting epilogue of Laskaris to his *Περὶ ὀνόματος καὶ ῥήματος* is printed as an appendix to this book. His namesake Ioannes Laskaris, who called himself Janus when writing in Latin, was not only the moving spirit in the second Florentine Greek press, that of Lorenzo di Alopa, but himself designed the majuscule fount which

Konstan-
tinos
Laskaris.

Ioannes
Laskaris.

distinguishes the books issued from that press from any others. Born in 1445, he began his career in Italy as a protégé of Bessarion, who sent him to study under Chalkondulas at Padova. Left without resources, like so many of his fellow-countrymen, by the death of his patron in 1472, he followed Chalkondulas to Florence; gained there a great reputation by his lectures, and the favour of Lorenzo the Magnificent, who appointed him his librarian, and sent him on two journeys in the East to buy manuscripts. A list of the places he visited and the persons from whom he made purchases is still extant, and has been printed in the first volume of the *Centralblatt für Bibliothekswesen*. While he was absent on his second voyage Lorenzo died, and on his return to Florence Laskaris undertook the editing of the Anthology and other Greek classics for Lorenzo di Alope. But this task was soon interrupted by the arrival of the French; he attached himself to Charles VIII, and returned with him to France. He died in 1535, at the age of ninety.

Markos
Mousouros.

Markos Mousouros was the most prominent man connected with the press during the later years of our period. A native of Rhe-thumnos in Krete, and therefore a fellow-townsmen of the printer Kallierges, he seems to have been born about 1470. He studied under Ioannes Laskaris at Florence. We also know from his own statement that he copied Greek manuscripts in his youth; the copy of Galen's works written by him was bought by Blastos and Kallierges from Nicolaus Leonicensus for the text of their edition. But nothing more is known of him till he appears as chief editor for the Aldine press in 1497. The Latin version of Mousaios, which was printed about that time, and interleaved with the unsold copies of the Greek text printed some two years earlier, is attributed to him; he edited the Dictionary of 1497, the Aristophanes of 1498, and the Letters of 1499 for Aldus. He was very active at this period, for at the same time he was editing the books printed by Kallierges and Blastos in 1499 and 1500, and undertook journeys on their behalf to purchase manuscripts; and in the same year, 1499, he was appointed Greek tutor in the household of the Prince of Carpi. From 1503 to 1516 he filled the office of censor of Greek printed books at Venice; he was appointed assistant professor at Padova, also in 1503, and succeeded to the chair itself in 1505, without however ceasing his labours as editor. On the outbreak of war in 1509 he withdrew to

Venice and occupied himself in preparing the works of Plato for the press. When peace was restored the Venetian Senate offered him the professorship there, and he held it till after the death of Aldus in 1515. He then obtained leave for a temporary absence, and accepted an invitation to Rome, to co-operate with his old master Ioannes Laskaris: but he never returned to Venice. Having taken orders, he was created by Leo X bishop of Hierapetra and soon afterwards archbishop of Monembasia, but died at the end of 1517 while still a man of middle age. His mastery of Latin was praised by Erasmus, who said that Gaza and Ioannes Laskaris were the only other Greeks who succeeded in learning the language. He had a remarkable turn for the writing of Greek elegiac verses, of which the chief monument is his long poem in praise of Plato. But he was very careless in his use of priceless manuscripts: the unique manuscript of Hesuchios shows still how they were ruthlessly scrawled over by him and then sent into the compositor's room to serve as copy.

The only Italian scholar at all prominently connected with the Greek press was Joannes Crastonus, a Carmelite monk of Piacenza,^{Joannes Crastonus.} who enjoyed a great reputation for learning in his day, though there is little information concerning him. Tritheim, writing in 1492, mentions his letters as being very numerous and elegant, and believed that he was then still alive; but, except occasional mentions by his contemporaries, no more personal knowledge seems to be preserved. He was evidently a close friend of Bonus Accursius, and all his published work was brought out by him; he was the author of the Greek and Latin dictionary, which though overlaid by the accretions of successive editors, held the field till the time of Henri Estienne, and he compiled a shorter vocabulary in Latin and Greek; both of these were printed three times before 1500. He also translated the grammar of Laskaris for the edition of 1480, and revised the Latin version of the Psalter for the edition of 1481. Thus all the evidences of his literary activity that we possess are included in a period of four years, 1478-1481; but of course the collection of materials for his lexicon must have been the work of his lifetime.

We have thus rapidly passed in review the principal agents in the revival of Greek literary studies in Italy; the patrons, Palla^{Greeks and Italians.} Strozzi, Cosimo de' Medici, Bessarion, and others; the teachers and professors—Greeks, generally restless, always exacting, continually in

money difficulties; their influence was immense, but was communicated chiefly in oral discourses which died with them; their writings are scanty, and of no permanent value as literature. The Italians, eagerly striving for a mastery of the language of Homer and Plato, and hanging on the lips of their golden-mouthed teachers, carried the knowledge thus acquired into wider fields, and turned it to practical use, seeking culture rather than learning, and adding elegance and polish in composition to the grammatical niceties and dialectical hair-splitting which often satisfied Greek tastes. The contrast between the master Chalkondulas and the disciple Poliziano is a case in point, an extreme one, no doubt, but the more essentially typical of the tendency just referred to.

II.

Practice of
the early
printers of
Greek.

So much may suffice as to the men who prepared the way for and carried on the Hellenic revival; an account of the printers themselves is best given in connexion with the books they produced, and we must now pass to the next division of our subject, and inquire how the first printers of Greek worked, what were their methods and their instruments; why they employed these methods and instruments; what kind of results they aimed at obtaining, and how far they succeeded or failed. Descriptions and discussions of the peculiarities of individual types or books will come later; at present we are concerned only with a general survey of the field, and the inferences to be drawn therefrom: and some attempt must be made first of all to trace the origin and models of the various Greek types which we find in early printed books, and to determine their relation to the manuscripts from which they are derived.

Classifica-
tion of types.

The types of the Greek presses in Italy up to the year 1500 may be divided by their form into three well-defined series. The first class, which may be called the Older or Early Greek class, includes all books printed under definitely Hellenic influences down to the establishment of the Aldine press in 1494, and excludes all other books. It comprises in reality only two distinct varieties of type. The one is the Milanese type of the 1476 Laskaris (pl. I), designed by or under the eye of Demetrios Damilas; the second Milanese type

(pl. II) bears marks of the same hand, and may be considered an adaptation from the first. The other type is that which the Kretan printers, Laonikos and Alexandros, used at Venice in 1486 (pl. V).

As is well known, the Italian scribes had in the Renaissance period gone back to earlier models of handwriting, and revived for classical texts the book-hand of the twelfth century. The earliest printers in Italy, reproducing in the form of type the writing of contemporary manuscripts, exercised a wise discretion in rejecting certain characteristics of handwriting, and thus created the roman types, which soon freed themselves from manuscript tradition, and in the hands of a long succession of craftsmen rapidly developed, and degenerated almost as rapidly. In Greek writing, a movement somewhat analogous to that of the Italians, but not strictly parallel, took place at a rather earlier date. From the middle of the fourteenth century onwards two influences seem to have been at work, the one conservative, the other progressive. The writers of vellum manuscripts kept the twelfth-century hand comparatively unchanged, advancing in the direction of greater freedom by very slow degrees; the writers of service-books and other manuscripts for church use were most rigidly opposed to innovation, and were helped by the continued use of vellum for service-books, while its decreasing use for secular books gradually brought the more moderate representatives of both schools into closer touch. The progressive school, consisting at first only of those who wrote on paper, adopted with the new material a freer hand, which tended to replace simple ligatures by complex abbreviations, and to reduce whole words to a labyrinthine tangle of flourishes. While the two hands continued to exist side by side, it was open to Demetrios Damilas, as designer of the first type of genuinely Hellenic character, to choose which he would. It was probably the greater simplicity of the older style rather than any more aesthetic considerations that determined his choice, because the experiment of Aldus, eighteen years later, in fashioning a fount based on the current hand, met with almost universal approval from his contemporaries. As the first book printed with the new type was the work of a writer then living, we may surmise with a tolerable amount of assurance that the type was not imitated directly from the writing of the actual manuscript which served as copy for the press, as is usually held, perhaps on somewhat insufficient evidence, to have been the case with the printers of Latin books.

Their
relation of
writing.

Imitation of
writing
pushed too
far.

In his first fount Demetrios made a mistake which the greater experience of his Italian fellow-craftsmen enabled them to avoid; but he was followed in it by most of the early designers of Greek founts, though he seems himself to have tried later to escape from it. The blunder lay in the attempt to reproduce not merely the forms of handwriting, but also the effect of continuity naturally produced by the motion of a pen over paper, and therefore right and proper in manuscript, but unsuitable for impressions made on paper by separate stamps laid side by side. Though this practice was largely abandoned in the second Milanese type (pl. II), and many of the changes in the first type, when it was recast for the Homer of 1488 (pl. III), were made with a view to its modification, it reappears in a different shape in the Venetian fount of 1486 (pl. V), and it was without doubt one of the principal inducements in the adoption by Aldus Manutius of the later style, in which the close imitation of writing is essential to its success. Aldus repeated the mistake some years later in his introduction of italic type, which in his hands, like his Greek founts, revolutionised the whole history of printing with disastrous consequences.

The Venice
fount of
1486 and the
MSS.

The Milanese types represent more or less a simplified book-hand of the moderate older school; the Venice fount is very distinctly derived from a church-hand of archaic appearance, and resembles the writing of the Gospels dated 1305, reproduced in plate 205 of the first series of the publications of the Palaeographical Society. The ecclesiastical character of the type is so strong that it may be conjectured that it was cut for a projected series of service-books, which for some reason never went beyond the Psalter, and that the first book for which it is used is of the nature of a type specimen. The book in question, the *Batrachomomachia*, is printed in alternate lines of red scholia and black text, so that, while its small size and popular character made it suitable for its purpose, it was also an experiment in the art of printing in two colours, which was indispensable for a liturgical series. The Milanese types, by their greater divergence from the influence of handwriting, show that their designer was a man of considerable originality and ingenuity; the Venetian fount, while agreeing with them in its genuinely Hellenic character, differs widely both in design and execution. In the Venetian type the appearance of continuity is sought by an elaborate system of ligatures, two, three

and four letters being commonly cast in one piece, and in an immense variety of forms and combinations, so that the number of sorts found in the two books exceeds twelve hundred, and even this is probably far from representing the fount in its completed state as projected. The effect was unsatisfactory; because the 'case' was complicated to an extraordinary extent by the enormous quantity of boxes required, and the use of so many ligatures resulted (in practice, though not of necessity) in splitting up the longer words into disconnected syllables, a result which makes the books very difficult to read even after considerable experience of them. The first Milanese type of 1476 (pl. I) is constructed on an ingenious plan, which enabled the resemblance to writing to be kept without the immense labour involved in cutting, casting and composing a vast number of unwieldy sorts. After the fashion adopted later for certain italic or script types, each letter was, with few exceptions, cut and cast separately, and the white space between the letters was reduced to the smallest possible amount by producing the end or connecting stroke of certain letters to the very edge of the type body, or, where the letter following began with a concavity or hollow, such as λ or χ, by kerning, or bringing the first letter rather over the edge of the second by means of a projecting shoulder which carried the connecting stroke, and fitted in to a corresponding depression in the hollow of the second letter. In consequence of the adoption of this plan, the number of sorts found in the Laskaris of 1476 is not much more than one-sixth of those in the two Venetian books.

Construction
of the 1476
type.

The second group or main division of Greek types consists of those used by Italian printers who habitually printed Latin or vernacular books, and were not under direct Hellenic influence, but who used Greek letters to print the passages in that language which occur in such books as Gellius or Lactantius, and sometimes printed a Greek text in parallel columns with a Latin version. These types, which may conveniently be called Graeco-Latin, are easily distinguishable from the types of the first or Hellenic group. They are as a rule very haphazard in their use of accents and breathings; the forms of certain letters are often clumsy, and their employment rather wild; each letter is cut separately, after the fashion of a Roman or Gothic fount, without any attempt at continuity. They were made by workmen accustomed to Latin types, who faced the problems connected

Graeco-
Latin founts.

Their relation to the MSS.

with Greek letters from the outside, from a different point of view from that of the Hellenic type-founder, and applied their technical knowledge and practice to the production of Greek forms in a Latin spirit. The Graeco-Latin group as a whole may be subdivided into three sections differing from each other in their origin. The types of the first class, which form the great majority, must be held to be copied from the writing used in the manuscripts for the Greek quotations in the text of classical authors, and rest wholly on Western tradition; of these founts there are two essentially distinct varieties: the Roman-Greek, wide and spreading, without any accents or breathings, and the Venetian-Greek, a more compact and regular kind of fount, in which the accents are generally arranged on the 'cutting-out' system, which I shall explain shortly. Those of the second class, represented by the type of 1489 used by Leonardus Achates at Vicenza (pl. XII), are copies of Hellenic types of the older style; the Vicenza type, for instance, is derived from the second Milanese fount. The third class is represented by only one type in the fifteenth century, that used at Reggio and Modena from 1497 to 1499 by Dionysius Bertochus. This class consists of copies from Hellenic types of the new style, and the type of Bertochus (pl. XVIII) is a rude imitation of the first Aldine fount. Of these three classes only the first has any claim to historical continuity with the past, and with manuscript tradition. A priori it would seem probable that an Italian printer, in adapting for the purpose of his Roman type the Latin writing of the manuscripts, would also adopt for his Greek letters the writing used for the incidental Greek passages in his texts; and that the two clearly defined varieties of our Graeco-Latin types, the Roman and Venetian, would each represent in a modified form the writing found in one distinct class of manuscripts. But as far as can be ascertained this seems not to be entirely the case. The fifteenth-century manuscripts of such writers as Aulus Gellius, Macrobius or Lactantius can be for the most part divided into two classes as regards the treatment of the Greek passages in them. In the one these passages were left blank by the writer of the manuscript, and were supplied by another hand, either, as in the case of the finer and more carefully executed books, at the same time and by a skilful writer of Greek, or, in ordinary cases, later, by some one, probably an owner or reader who knew and could write the language more or less. In the other class of

manuscripts the Italian scribe knew the elements of Greek writing, and did his best with it, so that it differs mainly in a want of firmness and clearness from the hand of a practised writer of Greek. It is of course impossible to say definitely that there are no manuscripts of the period which exhibit forms of writing similar to those of the Graeco-Latin types; it is even possible that the difference between the Greek type of Jenson (fig. 8) and the Greek in an Italian manuscript of Gellius in which the Italian scribe wrote in the Greek himself, is no greater than that between the Roman type of the same printer and the Latin writing of the same manuscript. At present, however, there seems to be no evidence that the distinction between Roman and Venetian founts rests on manuscript tradition, or that the curious parallelism between the arrangement and style of writing of the Graeco-Latin manuscripts of the tenth century, and the arrangement and topography of a Graeco-Latin printed book of the fifteenth, is anything but a coincidence; though it is tempting to assume the existence of some succession of links connecting such a book as the tenth-century bilingual Psalter in parallel columns from the library of Nicolaus de Cusa, which is figured on plate 128 of the first series of the Palaeographical Society's publications, with the similar Greek and Latin texts produced by Italian printers in the fifteenth century, or the Gospel of John (in the next plate), in which the two languages are written in alternate lines, with a book such as the similarly arranged *Batrachomomachia* of circa 1475 (pl. VII) in the John Rylands Library.

With Aldus Manutius a new era began. He had, like Damilas, to make his choice between the ancient and the modern style. The sound commercial instincts, which were always so prominent in him, led him to depart from precedent, and to bid for popularity by choosing as his model the current modern hand, with all its luxuriance of contortion and extravagance of meaningless abbreviations. With a lesser man the choice would have signified less; with Aldus it was disastrous. The enormous vogue of his publications and the great number of them exercised an overwhelming influence, affected the whole future history of Greek printing, and inflicted on its aesthetic side a blow from which it has never recovered. With the traditional conservatism of the Church, in this one instance justified by its results, those who printed and read the Orthodox service-books

Aldine and
later Greek
types.

vigorously resisted the innovation, with the exception of a few printers, such as Kallierges, who issued liturgical books only incidentally; the older and purer type which the majority continued to use, by gradual contamination with the descendants of the Aldine founts, in the course of time developed into that which is commonly employed at the present time in Hellas itself, and is the standard type of the majority of continental printers. This class of types, which owes its final form largely to Didot, differs in many respects from the so-called Porsonian types generally used in England. These last, which owe their origin to Baskerville in the last century, and were only slightly modified by Porson, represent a revolt against the degenerate descendants of the Aldine class of type: superior as they are to the continental founts in legibility and evenness, their dull monotony, ungraceful forms, and general lack of firmness and dignity in spite of all their precision, make them far removed from any standard which can now be accepted as satisfactory from any point of view. The well-designed though somewhat thin-faced and spiky types made by Messrs Decker of Berlin (which have been used in the present work, and are found in a few other books printed in England, such as Wharton's *Sappho*) and that of Mr Selwyn Image are a welcome sign of a return to better things; though the modifications to which the last-named has been subjected have deprived it of much of its charm, and the excessive smallness of the scale on which it has been carried out has obscured some of its finest features, and made it difficult to print from.

Character-
istics of the
Aldine types.

At the time, however, the Aldine types carried all before them: the older forms cease abruptly, as it became a point of honour (and of business) with every printer of Greek books who wished to be in the running, to follow the fashion by basing his type on the common writing hand of the day, the chief characteristics of which, whether written or adapted to the needs of the printer, are an absence of dignity, and a restlessness expressed in the want of restraint in the voluminous curves, the endless variety in the size and form of the letters, and an incredible complexity of abbreviation which makes the deciphering of a Greek text no small difficulty to the inexperienced. These faults are of course hardened and emphasized by their translation from the freedom of handwriting into the fixed mould of type. The loss of dignity is not compensated by the unrestrained freedom;

the vigorous beauty of form so striking in the older types is replaced by letters which at their best are ungraceful, and in all but the most careful hands degenerate into wiry thinness and nerveless imbecility. The earliest founts of the Aldine class vary much in quality; thus the first of all, the largest of the Aldine types (pl. XV), is one of the worst possible; the lower-case Florentine type of Lorenzo di Alopa (pl. VI) is comparatively simple, restrained, and solid; that of Kallierges, though most elaborate and rather thin-faced, is so well designed and cut with such firmness and evenness that the feeling of pleasure in its technical excellence predominates over the dislike produced by the defects which it shares with the rest of its kind.

Two types which stand apart from the foregoing may be classed together as abnormal. One of these is that of the undated edition of the *Erotemata* of Chrusoloras (pl. VIII), which is one of the very first of all printed Greek books. The Greek type of this book is in most respects an anticipation of the later or Aldine class, though framed on Graeco-Latin lines; in the form of the letters it resembles the later types, and the method adopted for the accents is the same in kind as that of Aldus; but in other respects the fount is made up of separate letters after the fashion of the Graeco-Latin types of the older class. The second anomalous type is far better known; it is that (pl. VI) which was specially designed by Ioannes Laskaris, nominally on the basis of ancient inscriptions, for the Greek press established at Florence in 1494 by Lorenzo di Alopa. As originally planned and at first used, it consists only of large and small capitals, without lower-case, and has an ingenious contrivance for inserting the accents which will be described shortly. Two years later, when the editor and printer desired to add the scholia to the texts of Kallimachos and Apollonios of Rhodes, a lower-case fount was designed, of which some mention has already been made.

Abnormal
founts.

The types of Greek books having thus been in some sort classified according to their form, we must now proceed to examine the construction of the founts, with special reference to the difficulties which their designers met with, the problems which they had to solve, and the various ways in which they overcame or solved them.

The great stumblingblock in the way of the designer or founder of a Greek type is of course the presence of the accents and breathings, and of the iota subscript, which last, however, was usually omitted

Treatment
of accents
by the early
printers.

in the early types, and need not be considered here. If the different combinations of accents and breathings with the letters be cut on single punches and cast solid, the number of punches to be made is very large, and the size of the case is increased in consequence; on the other hand, any device for combining them during composition increases the difficulty of composing, and of obtaining an even impression, and also adds greatly to the wear of the type. Modern printers have decided, especially in view of the steady decline of the average compositor into a machine and the altered conditions of labour and supervision in modern printing-offices, that the expense of the additional punches required is preferable to the trouble and loss of time caused by any more intricate method; so that Greek types now, with a few exceptions in the way of kerned letters for the more complex sorts, especially those with iota subscript, are always cast solid. It was quite otherwise with the first printers, who were continually planning new ways of economizing in this direction, though they did not hesitate to multiply different forms of the same letter in order to produce greater variety.

Omission of accents.

The existing fifteenth-century founts, when this test is applied to them, fall into four groups. The first plan tried is the simplest of all, and consists in merely omitting the accents altogether. Though this method has distinguished modern support, it must be considered unscientific, and was at any rate not likely to satisfy a native Greek printer. It is in fact a characteristic feature of the Roman class of Graeco-Latin founts, but is not used in any book printed wholly or mainly in Greek, except in the first impressions of Wittenberg (1511, 1513). But the text of the New Testament in the Complutensian Polyglott is not far removed, as the type, there found in its original state, has no breathings at all, and no accents except an acute.

Accents cast on the letters.

Next come the types in which the accents are cast on the letters; here two ways of lessening their number were tried. One plan, sanctioned by Damilas himself and used in the Laskaris type of 1476, was to omit certain of the less common combinations, and where they occurred to substitute others for them. The details of this practice, which cannot be commended, will be found in the description of the Laskaris itself given in a later chapter. The other method is more interesting. It was the prevailing practice in Graeco-Latin types of the Venetian or Jensonian class, and is not unknown

'Cutting-out' method.

to some extent elsewhere. To explain it, a concrete instance will be best. Take the letter α. For a complete set of this letter and its accents and breathings (without the iota subscript) twelve sorts are required: namely, α ᾱ ᾰ ᾱ ᾱ ᾱ ᾱ ᾱ ᾱ ᾱ ᾱ ᾱ. A fully developed Jensonian type would have only the last six of these sorts made, and would form the rest by cutting off with a knife from the face of the type what was not required. Thus α can be formed from any of the six by cutting out everything except the letter; ᾱ is made from ᾱ or ᾱ by cutting out the accent; ᾰ from ᾰ and ᾱ from ᾱ by cutting out the breathing, and so on with the rest. The process is easily seen, because not only is the breathing too far back in an ᾱ, and too far forward in an ᾰ formed from ᾰ, but the cutting was hardly ever done thoroughly, a blur being left, and it was often not done at all, a word like ἡνέχον being not at all uncommon in certain founts. The consonants were similarly treated; a large proportion of them were cast with an apostrophe attached, which was intended to be cut out when not wanted. Many examples of this practice may be seen in the plates on which Jensonian founts are reproduced. Modifications of it exist even in the Hellenic class of types, for instance in the Venetian fount of 1486, where unaccented sorts are frequently made from the accented form by erasing the accent; some instances of this are given later in the detailed description of the books in question.

A third group consists of the types in which some form of separate combination of letter and accent is adopted. In these the accents are cast separately, and are combined with the letter by the compositor. There are many different ways of doing this. In the most elementary device (pl. XXIII), found in most of the first Greek books printed at Paris (1507), the accents were cast on a body of the same size as that of the letters, and were made to occupy only the lower half of its face. The page was then made up of alternate lines of letters and accents; the latter were arranged over the letters in the line below to which they belonged, and the line was filled up with spaces or quadrats. Thus each line of text occupied twice the depth of the body of the type, and is arranged thus: the upper half of line 1 is white, the accents occupy the second half, and the letters take the whole of line 2. The effect thus produced is that of a heavily leaded page, such as were printed at Leipzig and elsewhere for school use, to be interlined with writing. But this method of printing Greek,

Separate
working.

The Aldine
method.

besides being clumsy, wasted a great deal of space, and was soon abandoned by Gourmont in favour of a more advanced system. The next plan is, instead of having a second line for accents, to work by means of a split body, somewhat in the manner now adopted for printing Hebrew with vowel points. Two slightly different varieties of this system exist. One of these is adopted in the early Vicenza Chrusoloras (pl. VIII), the other in the majuscule fount designed by Ioannes Laskaris (pl. VI). In the latter, which is the simpler, and therefore the more typical, the accents occupy a space equivalent to the difference in height between the large and the small capitals. Thus, while the large capitals occupy the whole depth of the body, the small capitals have a body only some two-thirds of their depth, and the accents are cast on a minute body about one-third of the whole; they are thus arranged in a kind of trough, and are placed above their letters and blocked up in the same way as that described above in the case of the Paris books. The first two Aldine types and the three founts based on them are arranged on a new system, which includes not only accents and breathing, but also abbreviations. From the evidence of slightly later types, which still exist, such as the French Greek founts originally commissioned by Francis I, there is no doubt that the Aldine method was to fit both accents and abbreviations over the letters to which they belonged by means of kerning, very much as the modern printer does in extreme cases, as for instance when he has to make an ϕ ; he has ϕ and ϕ^* ; the letter is made to overhang on the left side, while it is cast with a low shoulder at the top; the accent is made low beneath and high at the top, so that the two fit into one another, and when joined have the appearance of a single sort. It is in fact only an extension of the practice common to both the Milanese Greek types, and to many of the later ones, of undercutting the high τ , a letter which has a cross-stroke high above the line, and thus permits of a hollow being made below it, into which a shorter letter can be fitted; and it is that adopted by all or nearly all the early printers in their treatment of a letter following the long s . The opinion that some such process as that just described, and not any which involved differently sized bodies, was the one used by Aldus, is supported by his first book, the Laskaris, in which the type seems to be specially adapted in order to provide a long shoulder on which the kerns may rest.

I shall deal with this question more in detail later, so may pass ^{Method of} now to the fourth and last way of dealing with the accents, which, so far ^{Kallierges.} as we know, is represented in our period only by the type of Kallierges. But it must be remembered that in the absence of the poem of Mousouros (p. 121) describing the process, it would have been impossible to distinguish this fount from one of the fixed-accent class; it is therefore possible that other apparently fixed-accent types, concerning which no written evidence exists, were also made on a similar plan. Against this possibility is the fact that Kallierges spent five years in devising and making his type; this seems to imply a large amount of time spent on experiments; and his object being, as Mousouros himself implies, to follow the lead of Aldus without laying himself open to an action for contravention of privilege, we can hardly suppose that he merely transferred the methods of his predecessors in dealing with the older founts and adapted them to the newer style, especially in view of the consummate workmanship, which shows that he was no bungler at his trade, but a true artist. His method seems to have been, that separate punches were cut for letter and accent, or abbreviation; that the two punches were then clamped together, and the matrix was struck from the two combined, so that they were cast in one piece; in this way a great saving in the number of punches was effected, though the number of sorts in the finished type was very much larger than it was on the Aldine plan.

The second chief difficulty which the printers encountered was ^{Adjustment} concerned with the appearance of the page. Owing to the greater ^{of relative} length of Greek letters, whether high like λ, low like ρ, or both, ^{sizes of body} like φ, the face of most Greek types, which is of course regulated ^{and face.} by the size of the short letters, is smaller than the face of a Roman type of corresponding body: this is the case even with modern founts, where as a rule a Greek type of english body has its short letters about the same height as those in a Roman pica, and a Greek pica the same as those in a Roman small-pica fount. So with the early types; the Venetian type of 1486 (pl. V) is an exception; here by flattening out the ascending and descending strokes, and shortening the accents, the designer contrived to make the body and face identical without mechanical devices; the Milanese fount of 1476 (pl. I) is at the other end of the scale, as it is a two-line brevier, but its face in the short letters varies from pica to small pica. In this case therefore

there is an exceptional amount of white between the lines, an effect which was rightly displeasing to the eye of a good printer, especially to one of that time, who was always striving to produce the effect of a written page, in which the two features least adaptable to printing were the continuity of the letters and the interlacing of the high and low strokes in successive lines. This last characteristic of manuscripts may account for many of the instances of interlinear kerning both in Greek and in roman or gothic types. Accordingly, in order to bring his lines closer together, the printer had recourse to kerning the heads or tails of his longest letters. This practice, though not unknown to printers of Latin books, is not common in the fifteenth century; the earliest instances I have yet noticed are the large round type used from 1486 onwards by Nicolaus Kesler of Basel, and the small Roman used at about the same date by another printer of the same city, Johann von Amorbach. A facsimile of this type, with which Greek is used, is given in fig. 33. The kerning of letters in the same line by projecting side-pieces has already been touched on; the present form, where it is applied to the top or bottom instead of the side of a letter, is very similar. Thus a printer may if he choose cast a type on a body one size too small for his face; he must then accommodate all letters that surpass this limit with projecting shoulders to carry the rest of the letter, and fit on to the low shoulder at the head or tail of the opposite letter in the following or preceding line. Consequently care must be taken in founts of this kind that a kerned high letter does not come immediately under a low one, whether it be kerned itself, in which case a batter is the result, or whether it merely occupy the whole depth of the face, the effect then being that the higher letter is pushed up out of the line, and does not stand level on its feet, so that the impression of the whole page is injured. When the kerns are used properly, the fact of the fount being of this character may be ascertained by seeing whether or not a straight line can be drawn between the lines of types without intersecting any of the letters. If it cannot, the type is kerned, but in modern printing the converse is not necessarily true, because the tedious process of leading with cut leads may be followed, the lead being notched where a kerned letter comes. But of course, as the object of kerning is to save space, that of the leads to fill it, such a thing is very seldom actually done.

This was the kind of method adopted by some of the early printers of Greek, and they spared no trouble in order to bring their lines closer together, even to the extent of involving themselves in serious difficulties. The second Milanese type, a fount which is but little kerned, had at first a ζ so over-large that in one place, where three of them had to come perpendicularly in three successive lines, it was necessary to omit the middle one at the time of printing, and stamp it in afterwards by hand. But the most striking instance of what a printer would do to save space is the Vicenza type of Leonardus Achates. He had in 1489 a fount (pl. XII) which is certainly the best of the Graeco-Latin group, and is modelled directly on the second Milanese type; but because it required considerable space and a larger page than he desired, he curtailed it in the most merciless manner, suppressing some letters, docking others, kerning every high and every low letter almost without exception, until the type occupied not much more than half its original space (pl. XIII), and was so hopeless for the compositor, that he was constantly forced to set kern against kern, the result being that the surface of the forme became uneven, and the type did not take the ink or meet the paper properly. A similar example, hardly less pronounced, though much less sweeping, was the change made in the second Milanese fount itself (pl. II) when it was recast for the Isokrates of 1493 (pl. IV). In this case the type was trimmed both in length and breadth, but it is not kerned in the same way as the remade Vicenza fount, and is hardly less beautiful, especially when seen in the mass, than the original type.

Examples of
kerning.

The printers who introduced the new style varied in their use of the kern for reducing interlines. With the Aldine system of inserting the accents it was hardly possible to combine any device of this kind; and we find accordingly that the earlier Aldine types and those which are copied from them have no kerning of heads and tails, or very little. It is otherwise with the founts in which the accents were fixed, those of Lorenzo di Alopa (pl. VI) and Kallierges (pl. XXI), though the extent to which it is carried differs much in the two. The most striking example in the lower-case of the Florentine is the γαρ, which almost touches the foot of the short letters in the line above; the type of Kallierges is very elaborate in this respect, and as I shall try to show in dealing with it in detail, has several instances of such

Kerning in
the Aldine
types.

intricacy as to be difficult of explanation; it also shows signs of being specially adapted, by the position of the letter in relation to the body, to the use of these expedients. In this however it is far less extreme than the first essay of Aldus, which appears in his Laskaris of February 1495 (pl. XIV); in this the short letters are actually cast in the lowest possible position, in order to leave more room for the high strokes and for the insertion of elaborate abbreviations, apparently by means of kerns.

Enough has been said to show the importance which the printers attached to this matter, and I shall now pass on to the consideration of the books themselves, leaving other points to be noted in connexion with the individual printers, as any peculiarities other than those already mentioned are as a rule not of universal or general occurrence, but differ with the craftsmen in whose work they appear.

III.

Latin books
with Greek
type to 1476.

Having thus discussed at some length a few of the problems and peculiarities presented by early Greek printing in general, I propose to speak next of the various Greek types found in Latin books up to the year 1476, before dealing with the Greek books which appeared from 1476 to the end of the century. These will come next in order, and after them a short account must be given of some of the more remarkable types used in Latin books of the same period. It will be necessary in this instance to select founts which are remarkable either for their form or their completeness, or are used by printers who are personally of interest to us. The bulk of the types used in the last years of the century was too large, their use too wide, and their appearance and details too uniform, to make it either possible or desirable to deal with these later books in anything like similar detail to that in which I shall endeavour to treat the earlier ones.

Schöffer's
Cicero,
1465.

Though the history of Greek printing up to 1500 is virtually confined to Italy, the first book in which an attempt is made at printing Greek words was the work of a non-Italian press. This is the edition of the *De Officiis* and *Paradoxa* of Cicero printed by Peter Schöffer at Mainz in 1465. It is not indeed certain that this is actually the first printed book containing Greek words, because

it is not necessarily earlier (bearing as it does a less precise date) than the Lactantius printed at Subiaco on October 30 of the same year. But as a second edition of the Cicero appeared in February 1466, it is natural to assign the first edition to the earlier part of the year before; so that probability is in its favour, and against the Lactantius. In the Paradoxa, each of its six sections is headed by a Greek apophthegm. These puzzled the early printers a good deal, especially of course those of Germany and France. Heinrich Eggestein of Strassburg, in his edition of 1472, left spaces for the insertion of the sentences in MS.; in the edition issued by the printers at the Green Ball at Paris in 1477, the words are transliterated into Latin letters after this fashion: Oti monon to kallon tayathon. Oti autarkys cheulaimoniapros arcyn. Oti isa ta amartimata. Oti pantes oi moroi inchinontai. Oti monos o sophos e leuberos kaipantes oti moroi louloi. Oti monos o sophos plousios. Schöffer adopted a bolder course and attempted to reproduce them in Greek letters. For this purpose he made punches for the Greek letters η θ κ ρ τ φ ω,

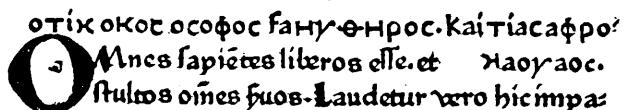


FIG. I. MAINZ, FUST AND SCHÖFFER, 1465.

besides two which represent μ and ν in a sort of way, and a non-descript letter more like an Irish γ than anything else, or a Greek λ reversed. He made up his deficiencies with Latin letters, of which a, c, f, i, o, y are found. The γ is used for ν and ι , η for ϵ and μ , τ for γ and τ , while the π is represented by a Greek τ followed by a Latin i . Of the Latin letters, a is used for α , δ , and λ ; c for σ and ς ; f is once used for ϵ , i (with or without the dot) for ι , o for $\omicron$ and once for ω , and y once for ι . One of the sentences is shown in facsimile in fig. 1, but as a matter of curiosity I add here a transcript of the five which occur; the second paradoxon has the text of the first repeated instead of its own. In the second edition of 1466 the Greek is exactly reproduced from the first edition. 1. οτι μονον το καα οναταθον (i. e. οτι μόνον τὸ καλὸν ἀγαθόν). 2. οτισα αμαρτηματα καιτατωτωμα (οτι ισα

τὰ ἁμαρτήματα καὶ τὰ κατορθώματα). 3. οἷ τις ἀφρων μαίνεται (ὅτι πᾶς ἀφρων μαίνεται). 4. οἷμ ονος οσοφος φανήθης . καὶ τις ἀφροναοργος (ὅτι μόνος ὁ σοφὸς ἐλεύθερος καὶ πᾶς ἀφρων δοῦλος). 5. οἷ μονος . σοφος τηκογης (ὅτι μόνος ὁ σοφὸς πλούσιος).

Leaving this book, the type in which is rather a 'sport' than otherwise, since in Schöffer's Jerome of 1470 the Greek is transliterated, and in his Valerius Maximus of 1471 spaces are left for the few Greek words which occur, we can turn to Italy. No more Greek was printed in Germany for many years, and in the rare cases where books were printed there containing Greek words or phrases, as e. g. the Letters of Seneca printed by the R printer, there was not, as a rule, even a space left. Schöffer himself, in his edition of the Letters of Jerome of 1470, in order to avoid ugly blanks, transliterated the Greek words into Latin letters, with astonishing results. In the First Letter to Demetriades, De uirginitate seruanda, the phrase μεσότηας ἀρετᾶς, ὑπερβολὰς κακίας εἶναι, is reproduced as — emesot vetasa reta cusierbo lasca kiasse inate! To this not even Schöffer's humorous remarks in the preface concerning those who think they are Greek scholars can wholly reconcile us. In Italy, however, things were widely different, since in the second book now extant from an Italian press, a more or less complete alphabet of Greek letters is found. This book is of course the Lactantius finished in the monastery of Subiaco by Sweinheim and Pannartz on October 30, 1465. The Cicero De Oratore, which was completed at least a month earlier, contains no Greek, the few words that occur being transliterated into the Latin alphabet. In the Lactantius, where there are numerous and long Greek quotations in the text, the printers at first left blanks for them to be filled in by hand; but wearying of this process, they gradually introduced an alphabet of Greek letters (fig. 2), of which a few are used quite early in the book. Thus on leaf 11 recto we find the words Ζεὺς Κρόνου (printed as ξεῦς ηρωνού), though a longer passage on the same page is left blank, and on leaf 12 recto is the word Κρόνον (printed ηρωνον). Either then the early leaves were printed last, in which case the blank passages are difficult to explain, or these letters are the first few that were produced, while there was not as yet a sufficient quantity of type to set up a sentence of any length. The type, which was doubtless cut specially for the Lactantius, is a remarkably bold and fine one; its body seems to

Subiaco
Greek type,
1465.

be identical with what is now known as great primer (20 lines measure 120 millimetres). As used at the end of the book the fount consists of twenty-seven letters, there being in addition to the twenty-four lower-case letters (σ only is found) a second form of ϵ , and also $\imath$, $\ddot{u}$. There are no breathings, accents, or subscript iota, the manuscript followed being no doubt written by one who was not a Hellenic; and the other early Roman types are alike in this particular. There are no capital letters; roman capitals are used when there is no difference of form, and otherwise the Greek lower-case. The secondary ϵ , which is used as a capital E at the end, is found on leaf 11 as a lower-case ϵ , and seems to be the original ϵ of the type. It was replaced, no doubt because its size did not agree with the rest of the alphabet, by an ϵ of the same size as the other letters, and of a greatly improved appearance, and the original ϵ was then utilized as a capital letter. Towards the end of the book, moreover, there is a notable improvement in the accuracy with which the Greek is printed; an error like $\alpha\nu\omega\mu\omega\varsigma$ for $\alpha\nu\epsilon\mu\omega\varsigma$ on the third leaf from the end, is an exception at the end, but the rule at the beginning.

On their removal to Rome in the autumn of 1467 Sweinheim and Pannartz discarded the type which had been used for all their books at Subiaco, and with it the Greek type of 1465. Together with their new roman fount they made a Greek alphabet (fig. 3), very similar in character to the earlier one, but with certain differences in some of the letters. The body was slightly reduced, the new fount being between great primer and two-line brevier (20 lines = 115 millimetres). This second type is seen at its best in the Lactantius of 1468; though of great beauty, its general appearance is rather less firm or compact than the Subiaco fount, an effect due partly to the greater thinness of the strokes; like that, it consists of the twenty-four lower-case letters, there being no ς , with $\imath$ and $\ddot{u}$ added; the anomalous ϵ is not reproduced in this type. The υ , which is rounded in the Subiaco type, is here pointed, and resembles rather the modern ν . The letters β γ η μ also differ considerably; in the others the difference is smaller. Sweinheim and Pannartz did not change this type at all; when the former had retired from active life to devote himself to the engraving of his maps for the Ptolemy, Pannartz, who continued to print books on his own account with a new set of types, retained the old Greek type for his books printed with the

Sweinheim
and Pannartz
at Rome.

de summo & conditore rerū deo huiusmōi uersus reperit̃tur. Αφθαρτος
κτίστης αιωνιος αιθερα μαιωρ τοις ακακοις ακακοις προ-
φερων πολυ μειζομα μισθον τοις δε κακοις αδικοις τε
χολοις και θυμοις εγειρων id est icorruptibilis et conditor eternus
in aere habitans. bonis bonū, pferens. iustis multo maiorē mercedem. in-
iustis aut & malis iram et furorem excitans. Rursus alio loco enumerans.
qbus maxie facinoribus incitẽt deus hec intulit. φευγε δε λατρειας
αμομιονς θεωζωρτι λατρενε μοιχειας τε φυλασσε και
αργεμος ακριτον εννηρ ιδιαμγεμεαρ παιδων τρεφε μηδε
φομενε και γαρθαματος κεχολωσεται οσκεμα μαρτη: Id

FIG. 2. SUBIACO, SWEINHEIM AND PANNARTZ, 1465.

hominum hoc modo exorsa est. ερχομενις οργισ μεγαλιω
επικοσμοις απαθι εσχάτορεις αιωρα θεον μνηματα
φερων πασι προφητενσασα καταπολις αρθρωποισι. Id ē.
Venient ire magne super mundū. dei pronūtiaciones enarrans.
omnibus hōibus in urbibus prophetans. Alia quoq; per indig-
nationē dei aduersus iustos: catbactismū priore seculo factū ēē
dixit. ut malicia generis hūani exstinguere. εχον μιηισαρτος
επον ραβιοιο και αρθρωποισι ρα πασι Γηρκαλνψε θαλασσα
ανταισι πολεεσι και κατακλισμοιο ρα ερτος. Ex quo

FIG. 3. ROME, SWEINHEIM AND PANNARTZ, 1468.

αρτιος ut ita dicam ολοκληρος quid est qđ dubitemus
quin per eosdem articulos & gradus pducēdus sit p quos
frater eius pductus sit. Sin autē η λαττωθεοι. Sentimus
eum και βεβλαθεοι. και εις την τουσωματος και
εις την της ψυχης αρτιοτητα πρεβεδα materia de/
ridendi et illū & nos nō est hōibus. τα τοιαυτα σκωπ/
τειν και μυκτηρογειν ειωθοειν. nam ip̃ estuabimus:
si de singulis articulis temporū deliberabimus. μη προν/
ποκειμενου η μηηρ ποσσε arbitremur eum gerere hōres

FIG. 4. ROME, IOH. PHIL. DE LIGNAMINE, 1470.

larger of his two founts, such as the *Elegantiae* of Lorenzo Valla dated July 1475, but was compelled to leave spaces for the Greek words which occurred in the Seneca's Letters of February 1475, and in other books for which the smaller type was used.

The other early Roman printers who used Greek type in their books were Ulrich Han and Ioannes Philippus de Lignamine. The latter employed one as early as 1470; Han, though probably the earliest printer in Rome, does not seem to have adopted it till 1471. His edition of the Letters of Jerome, if indeed the 'IA.RV.' edition is to be attributed to him, has spaces for the Greek words which occur, and in his edition of Cicero *De Oratore* of 1468 there is not even this; but as he did not print classics to anything like the same extent as Sweinheim and Pannartz, his need for Greek letters was less. Both Han and de Lignamine followed the lead of Sweinheim and Pannartz in the letters of which their types consisted, though the later types are far less skilfully designed, and are by no means uniform in size, the awkward shapes of many of the letters revealing clearly the inexperienced hand. They differ from each other in the size of the face, and at first in the body; that of de Lignamine is altogether larger and bolder than that of Han, and the letters are as a whole finer, though sometimes formed with an excess of freedom which tends to produce a straggling and ragged effect. De Lignamine's type (fig. 4), as it is found in the Suetonius of 1470, is a fount of twenty-six letters, cast on a body rather larger than great primer (125 mm.); it consists of the twenty-four lower-case letters, without *ç*, and with the addition of *ï* and *ü*. That of Han, which seems to occur for the first time in the Tortellius of 1471 (fig. 5),

α.β.γ.δ.ε.ζ.η.θ.ι.κ.λ.μ.ν.ξ.ο.
π.ρ.σ.τ.υ.φ.χ.ψ.ω.Sed harum

FIG. 5. ROME, ULRICH HAN, 1471.

has only twenty-three letters, as the *ο* of the roman type is used always, and there is no *ï* or *ü*. The type at this period is between english and two-line brevier (103 mm.); but when met with again, in the Lactantius of 1474, it has been recast on a body identical with that of de Lignamine's fount, to suit the new Latin type with which it is used, and has undergone certain modifications. Most of

the letters are identical, but the eta, which in 1471 has the η shape, and is a thick and clumsy letter, is replaced by one formed like a reversed Ν. The ε in 1471 rises above the line of type, the lower half being level with the short letters; in 1474 it goes below the line,

δῶσπιστορ Γαραπαρ μεροπωρ Γερσοσ αλλοταριδι
κοσμορ και θριτωρ ελθικρ ισ ιρ θεοσ αντοσ
ποινσει κρ ιρωρασ εβεισ θαμαεν σεβεαστε
και τοτε δῶσσεβεασ μερεπ ι ξοφορ ερ πῦρ ι πεμψε
οσσοιδενσεβονσ ι παλ ιρ ξισονσ επ ι Γαισ
πρε γμαβεον δορτοσ τ ιμιρ αμα και β ιορ αντοισ

FIG. 6. ROME, ULRICH HAN, 1474.

and the upper curve is on the general level. The punch of the θ has suffered damage, and has been broken in on the right-hand side; the letters ι, υ and a Greek ο have been added, though the roman o is also used. There is no change in the other letters of the type.

None of the other early printers in Rome appear to have had any Greek types; George Lauer leaves spaces in his Festus and Varro of circa 1471-72; de Lignamine, though he had a Greek type in 1470, does the same the next year in the Elegantie of Valla; the unknown printer who produced the Consolatio of Filelfo in 1475, and Johann Reinhard in his Festus of the same year, also leave spaces for the Greek words. But one more type of the Roman school is known; it is that used at Venice by Adam of Ammergau, and will be described in its place with the Venetian types, to which we now turn.

Just as the earliest types in Rome form a distinct group, so it is also with the Venetian types, which are in an entirely different style. They are, with few exceptions, of a smaller body; and are distinct in form, by being more compressed, less graceful and bold, but hardly less dignified, while more uniform in style and firmer in alignment. They are also more advanced, on account of the attempt, partial in intention and haphazard in application as it is, to represent in some way the accents and breathings.

Wendelin of
Speier.

In the books of the first Venetian press, that of Johann, and afterwards of Wendelin of Speier, the date of the first introduction

of Greek letters can be fixed within narrow limits. In the Letters of Cicero of 1469, the De Officiis of August, 1470, the Letters (second edition), and the Priscian of the same year, spaces are left throughout; but in 1471 the De Natura Deorum has two words at the end of the third book, and in the third edition of Cicero's Letters, also of 1471, a tolerably full supply is found, though many of the sorts used in the Lactantius of 1472 are as yet wanting. The fount is two-line brevier (110 mm.). There are no capital letters, nor any stops except the period; of the lower-case I have found the following sorts in the Lactantius (fig. 7):—

- (a) Consonants: β γ δ δ ζ θ κ λ λ' μ ν [i., ii.] ξ π ρ σ τ [low, high] φ χ ψ.
- (b) Vowels: α ᾱ ᾱ ᾱ ᾱ; ε ἑ ἑ ἑ ἑ ἑ; η ἦ ἦ ἦ ἦ ἦ; ι [i., ii.] ἰ ἰ [i., ii.] ἰ ἰ; ο ὀ ὀ ὀ ὀ ὀ; υ ὕ ὕ ὕ ὕ ὕ; ω ὦ ὦ ὦ ὦ ὦ.
- (c) Tied letters: σθ, σσ, στ.

There is no ς, but the στ is often used in its place; the two forms of ν and τ can be seen in the facsimile. Among the tied letters, σθ is very conspicuous by its want of proportion. The vowels show that this is a type of the 'cutting-out' class (see pp. 18–19), but it is not fully developed. For instance, though ὀ, ὕ, ἦ from ἦ, ᾱ from ᾱ, ἦ from ἦ, ὦ from ὦ, and ὦ, ὦ from ὦ, ἑ and ἑ are not from ἑ, or ᾱ from ᾱ; ἦ is not from ἦ, or ἦ from ἦ; ἰ and ὕ are not derived from any other form. The two kinds of ἰ have not the same form as the two forms of the unaccented letter; see πάλιν, τινῶν, line 3 of the facsimile, and καί, line 2, περὶδων, line 3.

This type of Wendelin's is easily distinguished from Jenson's, (1) by the form of π, which usually differs in Jenson; (2) by the σθ; (3) by the στ, which in Wendelin's type is below the line, and is used also as ς; in Jenson's type the ς always stands above the line, while the στ is a different sort. This fount was afterwards used by Johann of Köln and Johann Manthen, who in 1473–4 came into possession of Wendelin's materials.

Nicolas Jenson, the second and the most famous of Venetian ^{Nicolas} printers, began, like Wendelin, by leaving spaces for the Greek words ^{Jenson.} in his books. This lasted down to and included the Suetonius of 1471; in the Letters of Cicero, also of 1471, Greek letters first appear, and

uatione loqueretur : hęc intulit. ΤόντουΔέούτωσ ἔχοντοσ
Δήλον ὡσόνΔέν ἄΔύνατον καίημάσ μετά τότελευτ ἦσαι
πάλιν περίοδων τινῶν ἐλημένων χρόνου ἐν ᾧ νῦν ἐσμέν
κατασθέναι σχήμα. Id est quod cum ita sit apparet nil esse
impossibile: & nos post excessum nostrum rursus spatiis quibusdā
reuolutis temporum in hunc statum restitui: in quo nunc esse ui/
demur. Sed nos ab humanis ad diuina redeamus. Sibylla iterum
dicit. Δύσπιζον γάρ ἅπαν μέροπων γένος. ἀλλά ὅταν ἡΔη
κόσμου καίθητων. ἔλθῃ κρίσις ἥν θεός αὐτός ποιήσει.
κρίνων ἀσεβείστε ἅμα εὐσεβέαστε. καί τότε Δουσεβέασ μὲν
ἐπίζοφον ἐν πυρί πέμψει ὅσοι Δέ εὐσεβόνσι πάλιν ζήσουσιν
ἐπίγαίῃσ πνύμα θεοῦ Δόντός τιμήν ἅμα καί βίον αὐτοῖσ

FIG. 7. VENICE, WENDELIN OF SPEIER, 1472.

clari atque inclyti uiri tam infamibus nos uoluptatibus deterretet.
Διατί οἱ κατὰ τὴν τῆς ἀφῆς. ἢ γένσεως ἡδονὴν. ἢ γίγνομένην, ὃν ἄν
ὑπερβάλλωσιν. ἀκρατεῖς λέγονται. οἷτε γὰρ περὶ τὰ ἀφροδίσια ἀκό/
λασοι οἷτε περὶ τὰς τῆς τροφῆς ἀπολάνσεις, τῶν Δε κατὰ τὴν τροφήν,
ἀπενίῳν μὲν ἐντὶ γλώττῃ τὸ ἡδύ: ἀπενίῳν Δέ ἐν τῷ λάρυγγι. Διὸ καὶ
φιλόξενος γεράνου λάρυγγά ἐνχετο ἔχειν. οἱ Δέ κατὰ τὴν ὄψιν: καὶ
τὴν ἀκοήν. ὀνέτι: ἢ Διὰ τὸ τὰς ἀπὸ τούτων. γινόμενας ἡδονάς. κοινὰς
εἶναι ἡμῖν. καὶ τοῖς ἄλλοις ζώοις. ἅτε ὅν ὄνσαι κοινὰ ἀτιμώταται εἶναι
καὶ μάλιστα ἡ μόνα ἐπονείδισοι. ὡς τε τὸν ὑπὸ τούτον ἡττώμενον
ψέγομεν. καὶ ἀκρατῆ. καὶ ἀκόλαστον λέγομεν. Διὰ τὸ ὑπὸ τῶν χειρί/
ζων ἡδονῶν ἡττᾶσθαι. ὀνσῶν Δέ τῶν αἰσθήσεων πάντε. τὰ ἄλλα ζῶα
ἀπὸ δύο μόνων τῶν προεῖρημένων ἡδεταί. κατὰ Δέ τὰς ἄλλας. ἢ ὀ/
λως ὀυχῆδεταί. ἢ κατὰ συμβεβηκός τόντο πάσχει. ὀρῶν μὲν γὰρ
τὸ ὀρῶν. ἢ ὀσφραϊνόμενον χαίρει, ὅτι ἀπολάνει. καὶ ὅταν πληρωθῇ.
ὀνΔέ τὰ τοιαῦτα ἡδέα ἀντῶ. ὡς περ ὀνΔέ ἡμῖν ἡτοῦ ταρίχους ὀΔμη
ὅταν ἀδινῆχωμεν τὸν φαγεῖν: ὅταν Δέ ἐνδεεῖς ὤμεν ἡδεῖα. ἢ Δέ τὸν
ρῶδον αἰεῖ ἡδεῖα. Id est: Cur incontinentes eos appellare solemus: qui

FIG. 8. VENICE, NIC. JENSON, 1472.

is, thenceforth never absent from places where it is required. Jenson's type certainly seems to be closely modelled on that of Wendelin, but it is slightly thinner in face, and more evenly and regularly cut. It is also two-line brevier, and as found in a book such as the Aulus Gellius of 1472, from which the facsimile in fig. 8 is taken, is considerably fuller than Wendelin's alphabet, as it contains vowels with grave accent, and a larger number of combinations of accent and breathing. The following scheme is an attempt to give the sorts found in the Aulus Gellius:—

- (a) Consonants: β γ δ δ' ζ ζ' θ κ λ λ' μ ν [i., ii.] ξ π [i., ii.] ρ ρ' σ σ' τ [low, high] φ χ ψ.
(b) Vowels: α ᾱ ᾱ' ᾱ' ᾱ̄ ᾱ̄' ᾱ̄' ᾱ̄'; ε ῃ ῃ' ῃ' ῃ̄ ῃ̄' ῃ̄' ῃ̄'; η ῆ ῆ' ῆ' ῆ̄ ῆ̄' ῆ̄' ῆ̄'; ι ῑ ῑ' ῑ' ῑ̄ ῑ̄' ῑ̄' ῑ̄'; ο ὀ ὀ' ὀ' ὀ̄ ὀ̄' ὀ̄' ὀ̄'; υ ῡ ῡ' ῡ' ῡ̄ ῡ̄' ῡ̄' ῡ̄'; ω ὦ ὦ' ὦ' ὦ̄ ὦ̄' ὦ̄' ὦ̄'.
(c) Tied letters: ππ σσ στ.

It will be noticed that the π like that of Wendelin is rare, and is made from π' ; the number of consonants cut with an apostrophe which is afterwards erased is increased; and the 'cutting-out' process is somewhat developed with the increase in the number of accented sorts, though it is by no means complete; for instance, $\acute{\alpha}$ in line 2 of the facsimile is not made from $\acute{\alpha}$. But the imperfect way in which it has been done is sometimes amusing, as in $\tau\acute{\omega}\nu$ or $\tau\acute{\omega}\nu$, line 10 of the reproduction; $\acute{\omicron}\rho\acute{\omega}\nu$, line 13 ($\acute{\omicron}\rho\acute{\omega}\nu$); or $\epsilon\nu\delta\epsilon\epsilon\iota\varsigma$ ($\epsilon\nu\delta\epsilon\epsilon\iota\varsigma$), line 16: these delicate points are however not well seen in the facsimile, which hardens the example in line 10, and weakens the others. There are no instances where a circumflexed vowel is not the result of cutting out a breathing underneath it; $\hat{\alpha}$ $\hat{\epsilon}$ $\hat{\eta}$ $\hat{\iota}$ $\hat{\omicron}$ $\hat{\omega}$ all occur in the facsimile. Defective as the fount undoubtedly is in this respect, it is certainly one of the most advanced types of the Graeco-Latin group, and for beauty of form is not easily surpassed. Like all the other types of Jenson, it was copied far and wide in varying degrees of clumsiness, and became the model of incidental Greek letters, not only at Venice, but throughout Italy, and even in other countries (as at Nürnberg and Paris), for many years, so that until long after Aldine influence had supplanted the older styles in Greek books, the Jensonian forms survived, degraded but still recognisable, in Latin editions.

Adam of
Ammergau.

This type of Jenson's, or an exact copy of it, is used in the *Ausonius* printed by or for Bartholomaeus Girardinus in 1472; the ω , however, is different. In the *Cicero De Officiis* of the same printer, without date, spaces are left for some of the Greek words, so that it may be earlier than the *Ausonius*. The only printer besides Jenson whose career began in 1470 was Christoph Valdarfer of Regensburg. He had no Greek type, and in his edition, dated 1471, of the *Letters of the younger Pliny*, spaces are left, the result being in one place somewhat ludicrous. Two out of the three printers of 1471, Clemente Padovano and Franz Renner, were in the same case; indeed neither of them printed books likely to require a Greek fount; Renner, until he attempted to rival Ratdolt in 1478, printed nothing but theology, and Clemente is only known by a single book, which is medical in its subject. The third, Adam of Ammergau, is especially interesting to us, because his Greek type is unique among Venetian founts as being a type of the Roman class, resembling that of Han; an irregular, rather sprawling, awkward-looking fount, though not without considerable beauty and dignity. It consists, like the Romano-Greek types, of a single series of lower-case letters; the *i* of the Latin type being used always, while as usual there is no *ς*, their number is only twenty-three; there is a Greek *ο* in the set, but the *ο* of the Latin type is very frequently found. This type, probably two-line brevier like the rest though slightly larger (113 mm.), might be thought to support the old belief that Adam's books were printed at Rome, not at Venice; it is a curious fact that none of his books which contain his name have the place of printing given, though some books without his name, but in his type, have a Venice imprint. But any ground for doubt is removed when we find that his Greek letters were in 1475 in the hands of Gabriele di Pietro, of Treviso, about whose place of work there is no question. They are found in his *Perottus* dated December of that year. Three years later the type had travelled to Bologna; the German printer from Augsburg, Johann Schreiber, used it in another edition of the grammar of Perottus, dated May 1478. The first of Adam's books in which these Greek letters are found is the *Letters of Cicero*, 1471; but the supply was small, as there are many spaces left in it. The *Lactantius*, from which the facsimile in fig. 9 is taken, contains the complete set. One of Adam's books, the *Erotemata* of Guarinus, is the nearest

approach to a Greek book made up to that time; though written in Latin, it has a Greek title (Leaf 1^a: ΣΥΠΕΡ . ΕΡΩΤΗΜΑΤΑ . ΜΙΚΡΑ . ΠΟΛΛΥ || ωφελίμα . ιησους χριστος). The only copy of this book that I have seen is in the John Rylands Library at Manchester.

ΕΠΕΙ ΑΡΔΗ ΤΑΝΤΑ ΓΕΡΗΤΑΙ Ω ΔΟΚΛΗΠΙΕ ΤΟΤΕ Ο ΚΥΡΙΟΣ
ΚΑΙ ΠΑΤΗΡ ΚΑΙ ΘΕΟΣ ΚΑΙ ΤΟΝ ΠΡΩΤΟΝ ΚΑΙ ΕΜΟΣ ΘΕΟΝ ΔΗΜΙ
ΟΝΥΓΟΣ ΕΠΙΒΛΕΨΑΣ ΤΟΙΣ ΓΕΡΟΜΕΝΟΙΣ ΚΑΙ ΤΗ ΕΑΝΤΟΝ ΒΟΝ
ΛΗΣΕΙ ΤΟΝ ΤΕΣΤΙ ΤΟ ΑΓΑΘΟΝ ΑΡΤΕΡΕΙΣΑΣ ΤΗ ΑΤΑΞΙΑ ΚΑΙ Α
ΜΑΚΑΛΕΣΑΜΕΝΟΣ ΤΗΡ ΠΛΑΡΗΡ ΚΑΙ ΤΗΡ ΚΑΚΙΑΝ ΕΚΚΑΘΗΡΑΣ
ΠΗ ΜΕΝ ΝΔΑΤΙ ΠΟΛΛΩ ΚΑΤΑΛΝΣΑΣ ΠΗ ΔΕ ΠΥΡΙ ΟΞΥΤΑΤΩ
ΔΙΑΚΑΝΣΑΣ ΕΜΙΟΤΕ ΔΕ ΠΟΛΕΜΟΙΣ ΚΑΙ ΛΟΙΜΟΙΣ ΕΚΠΑΙΣΑΣ
ΗΓΑΓΕΝ ΕΠΙ ΤΟ ΑΡΧΑΙΟΝ ΚΑΙ ΑΠΟΚΑΤΕΣΤΗΣΕ ΤΟΝ ΕΑΝΤΟΝ
ΚΟΣΜΟΝ .i. Cū hęc facta fuerūt. o. Esculapī, tūc dnūs & pater &

FIG. 9. VENICE, ADAM OF AMMERGAU, 1471.

Of Filippo di Pietro, the brother of the above-named Gabriele, I have found no signed book up to 1476 in which Greek type is used: but the commentary by Georgios of Trebizond on the Philippic orations of Cicero, which is in this printer's type and must be of about 1475, contains a good deal of Greek (fig. 10). The type seems to be

Filippo di
Pietro.

est apud Homerum μη και υπερ μοιραν
λομον κοιδοσ εισαφικαι q Cicero fatuz
atq3 naturā uidetur dixisse: illud multo ate
Demosthenes dixit. υπερ στεφανου his
uerbis. ομεν τοις γονευσι νομιζον μο
von γεγενησθε τοντησ εμαρμενησ

FIG. 10. VENICE, FILIPPO DI PIETRO, 1475.

modelled on that of Wendelin of Speier rather than of Jenson: it has his π, the small θ, the two forms of ν, and the same kind of δ, but the tall τ is not found; the στ is used for στ only, and not for final ς also, as with Wendelin. There are no breathings or accents; the type is rather clumsily cut, and prints very smudgy. The 3 (final m) of the Latin type is used in place of ς; though there is an iota, it

is generally replaced by the Latin i: no o except the Latin seems to be found; and final ç is sometimes represented by c. Thus, including the two kinds of v, there are twenty-four Greek letters.

Johann of
Köln.

Johann of Köln and Johann Manthen, as has been mentioned above, came into possession of the types of Wendelin of Speier, and of his Greek type with the rest; but for some reason blanks are left all through their edition of Festus of 1474. The type is used in the Valerius Maximus, also of 1474, and the Priscian of 1476 contains a large quantity of it. It has a few letters which seem not to be found in Wendelin's books, especially consonants with apostrophe or smooth breathing, as ρ' ζ' θ' ρ' σ' τ' χ'. This marks a further step towards the complete 'cutting-out' class of founts. Among the vowels the only new sorts are ð and ù; these involve only one fresh punch, and that may well have existed before, and by chance have never been used. The angular v seems to be the v of a Latin type; the Latin o is also found.

Jacques le
Rouge.

The three last types of Venetian printers which belong to our present period are founts of a smaller body than any of the preceding ones. The first of these is a Greek rather under pica size (80 mm.), used in the commentary to a Juvenal printed in April 1475, by Jacques le Rouge of Chablis (fig. 11). There is very little of it, and what there is seems to be badly cut, being rough and irregular, the work probably of an unskilful hand, and is certainly very smudgy as printed, possibly from being cast in metal too soft to bear the pressure of the screw. It appears to belong to the 'cutting-out' class of types.

Miscomini.

Next of the three comes that of Antonio Miscomini, used in 1476, in his edition of Jerome's Letters (fig. 12). It is one of the very rare instances of Greek used with a Latin type of so-called gothic form. Like the preceding, it is a little smaller than pica (79 mm.), but differs from it in being very regular and beautiful in design. Like the type of Filippo di Pietro, it seems to be based rather on Wendelin of Speier than on Jenson. What it is chiefly remarkable for, however, is the 'cutting-out' system, here seen in its greatest perfection. With the exception of what seems to be ð and must be made from an ð which does not appear, and possibly of one or two more sorts, the original letters of the type can be classified thus:—

(a) Consonants without apostrophe: β γ δ ζ θ κ λ ν ε π σ ψ.

(b) Consonants with apostrophe: μ' ν' [majuscule form] ρ' τ' ϕ' χ' .

(c) Vowels: α' ϵ' η' ι' $\omicron'$ υ' ω' .

The consonants with apostrophe are also used with the apostrophe cut out; and it is possible, from the analogy of other types, that many of those here classed under (a), such as Γ , δ , ζ , θ , κ , λ , ν , π , σ , may have originally had an apostrophe which has been cut out in all places where they appear. But the frequency with which these letters occur makes that improbable, as some of them would almost certainly retain traces of the apostrophe, even if it had been cut off all or any of them. The seven vowels become twenty-eight by means of the knife, α' being made into α , $\acute{\alpha}$, and α , as to a less degree in the case of Wendelin's type; here, however, the process is carried out thoroughly. Besides these letters, a Latin *i* is found, and occasionally a Roman *X* is used for χ , as it is in the type of Domenico da Vespole at Milano, and in Gabriele di Pietro's type of 1478.

Thomas de
Blavis.

Last comes the edition of Cicero's Letters, dated 1476, without name of place or printer. In this book, which is the work of the Venetian printer Thomas de Blavis of Alessandria, a Greek type (fig. 13) is found. This, two years afterwards in the possession of Gabriele di Pietro, is a type between pica and english (90 mm.), very black and solidly cut, without accents or breathings, and dignified, though somewhat irregular, such letters as the μ differing greatly in size from the ϵ or ν . The δ is curious, and somewhat mars the effect by its excessive blackness. The π is open; κ has a curtailed lower limb; λ is a little slanting, and θ is very small.

Milano.

Outside Rome and Venice, the places where Greek type was employed up to 1476 are very few indeed. At Milano, where from the large number of classical books printed we should expect to find Greek much used, blanks were left almost invariably; by Zaratius, for instance, in his Festus of 1471, Acron on Horace, Cicero, De Officiis et Paradoxa, and Victorinus super Rhetorica Ciceronis, all of 1474, the Valerius Maximus of 1475, and the Quintilian of 1476; by Filippo da Lavagna, in the Cicero's Letters of 1472, and later books. Thus the town which was to become peculiarly famous for the printing of Greek was exceptionally backward in receiving it for use in the editions of the writers of antiquity, in the production of which she was rivalled only by Rome and Venice.

But Zarotus, the first Milanese printer, is to some extent an exception, and the facts about him are curious. Though he had no Greek letters at the time of the publication of his edition of Festus (1471), yet an edition of Cicero's Letters exists, with the single word 'Mediolani' as its colophon: this is in the same type as the Festus, and in it most of the Greek phrases are printed. This Festus type, probably the first used by Zarotus, is found in two books of 1471, and in one book dated 1472; but in that same year it was replaced by another, and was sold or otherwise disposed of. It reappears in 1475 at Venice, Greek letters and all, as the property of two printers, Lorenzo of Aquila, and Sibillino, a native of Umbria, who began and ended their career with an edition of Platina's book on cookery. Thus the date of the Cicero can be fixed as not later than the first half of 1472; and it is noteworthy that Zarotus, after parting with this Greek type, never replaced it during his whole career. Far more remarkable, however, is the evidence afforded us as to the active intercourse between printers in different cities during the earliest years. For it is clear from the nature of the type that Zarotus was influenced by the two Venetian founts, which were introduced, as far as can be ascertained, at precisely the same date as his own. It is of the same body (115 mm.) as the second type of Sweinheim and Pannartz, and is therefore slightly longer than the two-line brevier types; but in most other respects it is an extremely close reproduction, as may be seen by comparing fig. 14 with fig. 7, of the fount of Wendelin of Speier. Zarotus, like Wendelin, uses the σ letter for that only, and has no final ς as a rule; but in one or two cases the σ , turned upside down, is used as ς , and this is an obvious reminiscence of the ς of Jenson (see fig. 8). In the other cases where Zarotus differs from Wendelin, he almost always agrees with Jenson; thus the $\sigma\theta$ is that of Jenson, and the presence of grave accents, as well as the greater development of the cutting-out system, points to the same source. The sorts which I have found in the Cicero are these:—

- (a) Consonants: $\beta \ \gamma \ \delta \ \delta' \ \zeta \ \theta \ \theta' \ \kappa \ \lambda \ \lambda' \ \mu \ \mu' \ \nu \ \nu' \ \xi \ \pi$ [closed and open] π' [open only] $\rho \ \rho' \ \sigma \ \sigma' \ \tau \ \tau' \ \phi \ \phi' \ \chi \ \psi$.
- (b) Vowels: $\alpha \ \acute{\alpha} \ \grave{\alpha} \ \tilde{\alpha} \ \grave{\alpha} \ \tilde{\alpha}$; $\epsilon \ \acute{\epsilon} \ \grave{\epsilon} \ \tilde{\epsilon} \ \grave{\epsilon} \ \tilde{\epsilon}$; $\eta \ \acute{\eta} \ \grave{\eta} \ \tilde{\eta}$; $\iota \ \acute{\iota} \ \grave{\iota} \ \tilde{\iota}$; $\omicron \ \acute{\omicron} \ \grave{\omicron} \ \tilde{\omicron} \ \grave{\omicron} \ \tilde{\omicron}$; $\upsilon \ \acute{\upsilon} \ \grave{\upsilon} \ \tilde{\upsilon}$; $\omega \ \acute{\omega} \ \grave{\omega} \ \tilde{\omega}$.
- (c) Tied letters: $\sigma\theta \ \sigma\tau$.

It will be noticed that the high τ is not found in this type, and that several of the vowel-forms are cut out, and in some cases point to the existence of forms not found in the Cicero. For instance, $\acute{\alpha}$ comes from $\tilde{\alpha}$, $\tilde{\alpha}$ from $\check{\alpha}$, $\hat{\alpha}$ from $\check{\alpha}$; but $\check{\alpha}$, $\tilde{\alpha}$ are not used in the book: $\acute{\epsilon}$ is formed from $\check{\epsilon}$ or $\tilde{\epsilon}$, $\hat{\epsilon}$ from $\check{\epsilon}$, ι with a dot is made out of the ι with a dot behind the accent; $\acute{\omicron}$ from $\check{\omicron}$; $\acute{\upsilon}$, with a very obvious erasure, as in $\acute{\alpha}\rho\iota\sigma\tau\epsilon\acute{\upsilon}\nu$, line 6 of the facsimile, comes from a $\tilde{\upsilon}$ which does not occur; $\acute{\omega}$ is in the same case; $\hat{\omega}$ may be from $\check{\omega}$ or $\tilde{\omega}$, both of which are used. In the facsimile the υ of $\tau\epsilon\upsilon$ in line 3 comes from $\tilde{\upsilon}$ (see line 6), which itself may be formed, like $\acute{\iota}$, from a $\tilde{\iota}$. In line 5 the π of $\acute{\omicron}\pi\iota\sigma\sigma\omega$, and in line 6 the ν of $\acute{\alpha}\iota\epsilon\nu$ and the second μ in $\epsilon\mu\mu\epsilon\nu$, have had an apostrophe partially cut away. Other instances of this are the ι of $\alpha\iota\epsilon\nu$ in line 6, and the second letter of the last line. The pointed ν is alone found, not the square Jensonian form. The use of a Latin k with the upper part cut away, as in line 5 of the facsimile, is frequent.

Before leaving this type of Zarotus one more point may be noticed, which his Cicero shares in part with other books, though it is very prominent here. It will be seen from the facsimile that the Greek sentences do not always fit the spaces in which they stand; in other cases they are left out altogether. The explanation of this must be that a compositor who knew no Greek left this to be inserted by a second who did know a little, and made a rough estimate of the space likely to be required; in some instances the second man missed the places where he was wanted, and hence the blanks; in others the space wanted was miscalculated, whence comes the appearance shown in the facsimile. Two examples will serve to show the extent of his knowledge, or of his inability to read his copy. One is the word $\lambda' \epsilon\lambda \eta\theta' \delta' \tau' \acute{\omega}\sigma'$, which is well supplied with accents, breathings, and apostrophes; the other is the quotation from Hesiod:—

$\tau\acute{\eta}\varsigma \delta' \acute{\alpha}\rho\epsilon\tau\acute{\eta}\varsigma \iota\delta\rho\acute{\omega}\tau\alpha \theta\epsilon\omicron\iota \pi\rho\omicron\pi\acute{\alpha}\rho\omicron\iota\theta\epsilon\nu \epsilon\theta\eta\kappa\alpha\nu$
 $\acute{\alpha}\theta\acute{\alpha}\nu\alpha\tau\omicron\iota \mu\alpha\kappa\rho\acute{\omicron}\varsigma \delta\grave{\epsilon} \kappa\alpha\iota \zeta\rho\theta\iota\omicron\varsigma \omicron\iota\mu\omicron\varsigma \epsilon\varsigma \alpha\tilde{\iota}\tau\eta\nu$
 $\kappa\alpha\iota \tau\rho\eta\chi\acute{\upsilon}\varsigma \tau\grave{\epsilon} \pi\rho\acute{\omega}\tau\omicron\nu \acute{\epsilon}\pi\eta\nu \delta' \epsilon\iota\varsigma \acute{\alpha}\kappa\rho\omicron\nu \acute{\iota}\kappa\eta\tau\alpha\iota$
 $\rho\eta\iota\delta\acute{\iota}\eta \delta\grave{\eta} \epsilon\pi\epsilon\iota\tau\alpha \pi\acute{\epsilon}\lambda\epsilon\iota, \chi\alpha\lambda\epsilon\pi\acute{\eta} \pi\epsilon\rho \epsilon\omicron\upsilon\sigma\alpha.$

This appears in the following form: $\tau\acute{\eta}\varsigma \delta\acute{\alpha}\rho \epsilon\tau \sigma \iota\delta\rho\omega\tau\alpha \theta\epsilon\omicron\iota \pi\rho\omicron$
 $\alpha\rho\omicron\iota \acute{\epsilon} \kappa\alpha\nu \acute{\alpha} \acute{\alpha}\nu\alpha\tau\omicron\iota \mu\acute{\alpha}\kappa\rho\acute{\omicron}\varsigma \delta\grave{\epsilon} \kappa\iota \acute{\omicron} \iota\omicron\sigma \omicron\iota\mu\omicron\varsigma \acute{\epsilon}\pi\acute{\alpha}\nu\tau\omega \kappa\alpha\iota \tau \eta\chi\iota\varsigma \tau\omicron \pi\acute{\iota} \omega\tau\acute{\omicron}\nu$

ita loquūt μέμανας πον δει γε καὶ ἀκλείωσ ἀπολοὶ μεν sed me
minus iam mouent ut uides Itaque ab homeri magni eloquentia cō
fero me ad uera præcepta τὸν ευριπίδου μισῶ σοφίξιν

quem uersum senex Precilius laudat egregie &
ait posse eundē & ἀμα προσω καὶ ὀπίσσω
uidere & tamen nihilominus αἰεὶ ἀρίστευειν καὶ ὑπέροχον ἔμμεν
αἰ ἀλλων Sed ut redeam ad id unde coepi gratum uehementem mi

FIG. 14. MILANO, ANT. ZAROTUS, c. 1471-72.

ρια: ut armatus ὁ ὀπλίσμενος. καὶ ὀπλίτης
 doctus ὁ πᾶσι δαύεσι καὶ ὁ πᾶσι δύν τος acutus ὁ ὀξυνθεὶς καὶ ὀξυν-
 tus παραινόμενος. ἡ παραινέσις υποθήκη iudicatus ὁ κριθεὶς. καὶ ὁ κρι-
 τὴς factus ὁ ἐστὶ τιθεὶς. καὶ ὁ ἐστὶ πεσίσης sapiens ὁ φρονίμῳ καὶ ὁ φρονίμω
 armatura ἡ ὀπλισία. καὶ ἡ ὀπλισίς Iscriteura ἡ γραψούσα. ἡ γραφή
 figura ἡ χρῆσις. καὶ ὁ τοκοσ. ἡ χρῆσις ἐξαλείφουσα καὶ ἡ ἐξαλεί-
 φη factū το γένο μένον. καὶ τὸ ποιητὸν: dictū τὸ λέχεν. καὶ ὁ λόγος: ut
 factum τὸ ὥραθιν. καὶ τὸ ὄραμα: legendus ὁ λέχενόμενος. καὶ ὁ λέκ-
 τὸς οὐκ ἀγνώστου μένος ὁ ἀνὸς γνῶσις amandus ὁ φιληθεύς μένος. καὶ ὁ
 φιλήτης. Sic et alia plurima: quae cum temporibus participia sunt: absq-

FIG. 15. MILANO, PRINTER OF SERVIUS, c. 1475.

ἤρσαδε οἱ ευρυμόμυ καρίτασ τε κε
 καλλίπαρθου
 ὤκεαρου κούρη πολυήρατον εἰδοσ
 έχουσα
 αἰγλήν καὶ ευφροσύνην θάλιν
 τερατίζουσα
 τῶν καὶ ἀποβλεφαρῶν εἰσε
 ται δερκομένα
 λυσίμελὸς καλὸν ἀνθρώποις ἀ
 κρουμένη

FIG. 16. MILANO, DOMENICO DA VESPOLATE, 1476.

εἴ ὅδε ἀκ οὐ ται ἰ ἰ ἔ ι ἄ χάλε σ' ἐ ἰ ἄ. That manuscript must indeed have been illegible!

The second Milanese Greek type that I have found is that used by the anonymous printer of the commentary of Servius on Vergil, dated 1475. He also printed, without imprint or date, a Priscian, in which a considerable amount of Greek type is found (fig. 15). This printer, whoever he may have been, was a poor workman, and extraordinarily careless in composing and revising his texts. The Greek type used in the Priscian is a two-line brevier, based upon the Venetian founts, but very roughly cut. It is of the 'cutting-out' class; for instance, θ λ ν π σ were all cast with an apostrophe originally; and the number of roman and wrong fount letters is amazing. In the first line of the facsimile three roman letters are used, v , i , $\bar{i}$. In line 2 a $\mathfrak{z}$ (= m final) upside down is used for ϵ ; beyond is another ϵ resembling that in Ulrich Han's type, but quite different from the ϵ of line 1. In line 4 come a roman $\bar{k}$ and o , and the Greek μ and ω are printed upside down. In line 7, a capital Υ is used for γ . In line 8, the first α in $\delta\rho\alpha\mu\alpha$ and that of $\kappa\alpha\iota$ differs from the ordinary α of the type: The sign for σ is often used for final ς . A $\sigma\theta$ is also found (line 4). The only other Milanese type which I have found is more interesting (fig. 16), as it is used in December 1476, by Domenico da Vespolate, a printer with whom Paravisinus was associated in 1478, and in the very year that saw the publication of the Laskaris. It shows clearly enough that at this time there was no connexion between the two printers, as no type more unlike that of the Laskaris could be imagined. The type in question is a large-faced one, larger in fact than the Roman type with which it is used; that has an exceptionally small face for a fount only slightly smaller than two-line brevier (106 mm.); this is of free, bold form, without a trace of Venetian influence, but rather recalling the types of the Roman printers; the letters fail to hang together, are unequal in size and incongruous in shape, but the type, though not a success as a fount, has one point about it which suggests that a Hellene had a hand in designing it. This is the three forms of θ , one the ordinary modern form, another in which the cross piece projects on each side, and a third the open form of the letter. In this respect Domenico da Vespolate's type stands alone among the earliest Latin-Greek founts. It consists of twenty-six Greek letters, α β γ δ ϵ ζ η θ [i.-iii.] κ λ μ ν ξ π ρ σ τ

τ υ φ ψ ω ὦ. The o is roman, and for i a gothic *ı* in which the dot is almost like an acute accent alternates with a roman i: χ is always represented by a capital X, either upside down or the right way up. The *ı* and ὦ are used quite indiscriminately.

After Milan, only four towns can be named in which Greek type had arrived by 1476; these are Padova, Ferrara, Treviso, and Vicenza. Elsewhere the use of spaces seems to be invariable; thus at Bologna, Azzoguidi in his *Perottus, De generibus metrorum*, and at Naples Matthias Moravus in his *Pliny's Letters* of 1476, both leave blanks; in the *Pliny* some pages are more than half empty in consequence. At Brescia the printer who produced the *Juvenal* of July 1473, and *Statius Gallicus*, the partner of Heinrich of Köln, in the *Elegantiae* of Lorenzo Valla of March 1475, had no Greek type; nor is there any in the books printed in 1472—1474 at

mus. In. i. v. t. : ἀργεία λ᾿ αὐπεία ῥικομῆ
 δεία argia: lāria: nicomedia: i. e. ut δῆμι
 οπεία καλ᾿ ἰοπέα deiopēia: calliopeia
 μῆδῆα π᾿ αὐτῆα: mēdea platea & hῆμι
 possessiuis: ut ἀχ᾿ ἰχ᾿ ἰοσ: ἀλφῆιοσ:

FIG. 17. PADOVA, BARTOL. DA VALDEZOCCO, 1474.

Fivizzano in the Lunigiana. At Padova, Albrecht of Stendal always Padova. leaves spaces, as in the *Grammar* of Omnibonus Leonicensis (1474) and the undated *Juvenal*. But another edition of the same *Grammar*, printed in January 1474, by Bartolommeo da Valdezocco, has a Greek fount, based on Jenson's (fig. 17); it differs in the second *v*, which resembles that of the *Laskaris* of 1476, but betrays its origin by the two forms of *π* and the grave accents. The following letters occur in the book: α ᾱ δ ε ἑ η θ κ λ λ' μ μ' ν [i., ii.] π [i., ii.] ρ σ τ υ φ χ ω, together with a roman i and o. Another book, which is without imprint, but by its roman type appears to belong to Padova, is an edition of *Perottus, De generibus metrorum*, printed in quarto with 25 lines to the page. The date may be slightly later than 1476, but it seems best to include it here. The Greek letters (fig. 18) found in this book are of unrivalled eccentricity. Besides the forms of the letters, which are extraordinary enough, the accents, such as

they are, seem to be inserted separately; for instance, in the word βραχέας (see the facsimile), the circumflex is over both ι and α: so in various occurrences of τοῦ, it is at one time over the υ, at another

statione iuncturarū quæ ἐπὶ τῷ δακτύλῳ idē in di-
gito sunt: etenim quemadmodum ī digito longiorē
primum articulum sequentes uero breuiiores cerni-
mus: ita dactylus prima quidem syllaba pducta con-
stat sequētib⁹ uero correptis. Anapaest⁹ ἀπὸ τοῦ αἶμα
πᾶσαι. τῷ δακτύλῳ hoc ē q̄ dactylo cōtrari⁹ sit am-
phiacr⁹ q̄ ἄλτῃ hoc ē u. ring⁹ duas syllabās t̄iacr⁹
idē lōgas habeat. Amphibrach⁹ q̄ duās βραχυᾶς id
est breues. Bacchius quoniam dithyambicorū car-
men quod in honorem Dionysii qui bacch⁹ dicitur
fieri solebat magna ex parte huiusmodi pedibus cō-
stabat. Palimbacchi⁹ ἀπὸ τοῦ δακτύλου q̄ illi sit cōtrari⁹

FIG. 18. SINE NOTA (PADOVA, c. 1476?).

over the τ, and once over both ο and υ. In the word σπένδοντες the accent is placed on the π; these things would be impossible with fixed accents, as no man ever yet made a π with an acute, or a τ with a circumflex accent. There is even some attempt at providing capitals; 'Α in the word 'Αμφι occurs in the facsimile. The Ferrara

Ferrara.

ἐφιεμαι καὶ λίσαν ἐνχομαι αἰσθάνεσθαι
σε τίνα ἐνροντα διδασκαλον περι τα
λογικά ἢ διάλεκτικῆν καὶ περὶ την φι-
λοσοφίαν ὅνπερ γενομενον μαντενο
μαί σε ἕτερον ἰταλίασ ἀνθος εσεσθαι
πείσθουν μοι πειθουν πᾶι φιλτατε.

FIG. 19. FERRARA, ANDRÉ BEAUFORT, c. 1474.

Greek type was used by André Beaufort in his two editions (about 1474 and 1476 respectively) of Baptista Guarinus, De ordine docendi et studendi (fig. 19). It is a Jensonian fount, as is shown by the high

final ς , the two kinds of π , the grave accents, and the $\sigma\theta$; but is rather larger in the face, a good deal thicker, and a good deal more wide-bodied. The accents are very few in number. The following is a list of the sorts found in the two editions of Guarinus:—

- (a) Consonants: Γ δ θ κ λ μ ν [i., ii.] π [i., ii.] ρ σ ς $\sigma\theta$ τ [i., ii.] φ χ .
- (b) Vowels: α $\dot{\alpha}$ $\acute{\alpha}$ [formed from $\check{\alpha}$] $\hat{\alpha}$ [from $\check{\alpha}$] $\check{\alpha}$; ϵ $\acute{\epsilon}$ $\grave{\epsilon}$ $\hat{\epsilon}$ [from $\check{\epsilon}$] $\check{\epsilon}$ $\check{\epsilon}$ $\check{\epsilon}$; η $\acute{\eta}$; ι $\acute{\iota}$ $\grave{\iota}$ [from $\check{\iota}$]; $\omicron$ $\acute{\omicron}$; υ ; ω .

At Treviso the first printer, Gerardus Lisa, printed a Hermes Treviso. Trismegistus in 1471, with spaces for the Greek words; but when, about 1475, he had a new and very remarkable Latin fount made, some Greek letters were cut to match it, with conspicuous success (fig. 20). The two alphabets range so well that, unlike all other types

Perotus Nicolao Perotto salutem. p. di. uel. si græce
 scribas. πρὸς περὸτος νικολάω περὸτος εὐ-
 πράτει. hic ē enī græce. mol. ut bene agere dicat
 ubi latinī salutē dicūt. In fine autē epistolæ ponēdū
 ē uale. i quo græci cū latinis cōuēiūt dicētes εὖροσσω

FIG. 20. TREVISO, GER. LISA, 1476.

of this period, the Greek does not catch the eye by its difference in size or tone. The principal reason of this, next to the uniform thickness of line in both, is the exceptionally small face of the Latin type in comparison with its english body; the ascending and descending strokes are very long, and it was thus possible to make the face of the Greek of the same size, instead of smaller as usual. Though a complete alphabet was no doubt made, the only sorts found in the Perottus, Rudimenta grammaticæ, of 1476, are these: α Γ [high and low] δ ϵ η ι κ λ μ ν ρ σ τ φ χ ω . The two kinds of Γ are both of majuscule form, but one is much taller than the other. The δ resembles that used in the early Roman-Greek types. The ν is remarkable for a distinct break of continuity between the upright stroke and the curve; the υ is pointed like that of Ulrich Han or Adam of Ammergau, and the χ is a short letter. There are no breathings or accents.

Vicenza.

The Vicenza Greek type, which is found in the commentary of Omnibonus Leonicens on the De Oratore of Cicero, dated Dec. 22, 1476, will be spoken of at length in the next chapter, when I come to the early sine nota Chrusoloras, and need not be more than mentioned here.

Unknown
places.

Two other books remain to be noticed, which are certainly not later than 1476, but have no indication of their place of printing.

The first of these is the Liber de Homine of Marzio Galeotti, which offers some curious problems. Its date is approximately fixed by the existence of a reprint (in which the Greek words are omitted), the work of Federigo de' Conti at Iesi, which cannot be dated later than the early part of 1472. But the attack on the book by Georgius Merula did not appear till 1474, and Galeotti's reply to Merula was printed at Bologna in 1476 from his autograph MS. At the time the Book on Man was written Galeotti was living at Budapest; he was director of the royal library there, and tutor to the son of Matthias Corvinus, and the book is dedicated to the Archbishop of Gran. Now it can hardly be an accident that in the first edition the name of the king when mentioned in the text, near the beginning of the second book, is printed in capitals, while it is not so in that printed at Iesi. The Latin type of the first edition is very rude and eccentric; it is badly cast, the lines are not properly justified, the forme was not locked up firmly, and the ink and presswork are anything but what they should be. The type recalls more than any other that used by Heinrich of Köln and Eustace at Brescia in 1474, but is not the same, and they possessed no Greek type, as has been already mentioned. I am not at all convinced that this first edition was not printed under Galeotti's own eye. There was a printer at Budapest in 1473, one Andreas Hess, and his books have the very remarkable peculiarity, for printers north of the Alps, of being printed in Roman type. Dr. Göddlin von Tiefenau was kind enough to compare the Galeotti with the two books signed by Hess in the Wien Hofbibliothek, and found that the types were not the same; but this does not prove either that Hess did not use another type in 1471, or that the Liber de Homine is not the work of another printer, inspired by Galeotti, as no doubt Hess was, to work with roman types. However, this is a mere conjecture, for which I admit the evidence is but slight. The watermark of the paper, which might help identi-

fication, is a six-rayed star in a circle, from which projects a thin cross, its arms ending in oval bulbs. Of the Greek type only single words occur, scattered through the text, so that the alphabet given here (fig. 21) had to be made from a tracing. A whole page, with a Greek sentence, is reproduced in the Type Facsimile Society's

Γαλλεεζηικλμροπρστυφτω

FIG. 21. PLACE AND PRINTER UNKNOWN, c. 1471?

Publications for 1900. It is a very curious fount, great primer in size, of an entirely independent form, less unlike the Roman than the Venetian Greeks, but not really analogous to either. The disproportionate width of some of the letters, especially υ and ω, is as noticeable as the narrowness of the δ, μ, and ψ.

The second book which I have seen, containing Greek letters, but which I cannot at present assign to any printer, is an edition of Priscian, *De declinationibus nominum*, a small quarto, very badly printed in a roman type, which has several peculiarities which ought to make its origin discoverable; the stops are (like those in early Florentine types) in the shape of a saltire; the sign for *us* is a curve merely, without a loop; *v* is used for *u* at the beginning of words; the crossbar of the *e* projects a little, and the sign for *rum* is a little on one side, while the tail, with its diagonal stroke, is exceptionally long. This type seems to be identical with that of a quarto Propertius, with twenty-five lines to the page, ascribed by Dibdin (*Bib. Spenc.* ii. p. 288, no. 386), but seemingly without sufficient reason, to Thomas Ferrandus of Brescia. The Greek type in the Priscian is formed on the Jenson model, and is to all appearance identical with that of the *Batrachomyomachia* shown in plate VII; this actually is by Ferrandus, though the fact was not guessed by Dibdin.

This then is some short account of such types used in Latin Conclusion. books up to the year 1476 as have come to my notice; there are doubtless a considerable number of others which have escaped me. Those described, often differing as they do from each other in almost every respect, have thus much in common, that they are without exception designed and set up by men to whom Greek was not their mother-tongue, and probably more or less an unknown language.

It is therefore not surprising that accuracy, either in transcription or the use of accents, is not a prominent feature of the Greek in these books, but rather that so good a result, almost always in form and often from the literary side, was obtained.

Outside Italy at this period the absence of Greek in such few classical books as were printed was universal. Schöffer has been spoken of earlier; the R printer, in his edition of the Letters of Seneca; the first Paris press, in the Orations of Bessarion, 1471; and—an extreme instance, as many pages are almost blank—the Rostock Brothers of Common Life, in their Lactantius of 1476, all alike leave spaces for Greek words.

IV.

Books of the
older Greek
class.

We now pass on to review in their order such books as are either printed wholly in Greek, or have the Greek text accompanied by a Latin translation, usually in parallel columns, but in the undated *Batrachomomachia* interlinear, and in the Milanese Aesop printed apart as a separate section of the book. The books are divided, following the indications given in the introductory chapter (p. 1), into three parts; the first containing such as were produced, down to the establishment of the Aldine press, either under direct Hellenic influence, such as that of Demetrios Damilas or Chalkondulas, or, as in the case of the Bonus Accursius press, with genuinely Hellenic type and in accordance with Hellenic methods and tradition. To this section, mainly on account of the difficulty of placing it elsewhere, is added the Florentine press of Lorenzo di Alopa, which was directed by Ioannes Laskaris. The second division contains the Greek books printed by Italians without the aid of Hellenic scholars, with corresponding type, either frankly Graeco-Latin in character or copied from Greek models, as the Vicenza fount of 1489 is copied from the second Milanese type. With a single exception all the books of this class have a Latin version printed with the Greek text. Although the work of Bertochus at Reggio and Modena in 1497–1500 strictly belongs to this group, the fact that his type is a copy of that of Aldus and is the only Graeco-Latin copy of a Greek type of the new style during our period, makes it desirable to close this second

division at the same point as the first, and to place all the 'modern' founts, whether original or derived, together in the third division, which thus covers the period from the beginning of 1495 to the end of the century. What follows is a short list of the books to be dealt with, arranged in the order in which they will be spoken of here.

A. EARLY GREEK CLASS.

I. MILANO—FLORENCE, 1476-1500.

i. MILANO, DIONYSIUS PARAVISINUS, 1476. Type 1.

1. 1476 Jan. 30. Laskaris, Epitome. [Legrand 1.]

ii. MILANO, FOR BONUS ACCURSIUS [B. AND J. A. DE HONATE?], 1478-1481. Types 1, 2, 3.

2. [1478.] Crastonus, Lexicon. (Type 1.)
3. n.d. Aesop. (Type 1.)
4. n.d. Saxolus Pratensis. (Type 2.)
5. n.d. Crastonus, Vocabularius. (Type 2.)
6. n.d. Theokritos and Hesiod. (Type 2.)
7. [1480 Sept. 29.] Laskaris, Erotemata. (Type 2.)
8. 1481 Sept. 20. Psalter. (Types 2, 3.)

iii. FLORENCE [BARTOLOMEO DI LIBRI], 1488-1500. Type 1*.

9. 1488 Dec. 9. Homer. [Legrand 5.]
10. n.d. Chrusoloras. [Legrand 2.]
11. 1497 [Sept. 23]. Zenobios.
12. 1500 Sept. 19. Orpheus. [Legrand 28.]

iv. MILANO, HEINRICH SCINZENZELER, ETC. 1493. Type 2*.

13. 1493 Jan. 24. Isokrates. [Legrand 7.]
14. (a) n.d. Chalkondulas, Erotemata.
- (b) n.d. Moschopoulos, Erotemata.
- (c) n.d. Περί διαλέκτων. [Legrand 8.]

II. VENICE, 1486.

VENICE, LAONIKOS AND ALEXANDROS, KRETANS, 1486. Type 4.

15. 1486 Apr. 22. Batrachomyomachia. [Legrand 3.]
16. 1486 Nov. 15. Psalter. [Legrand 4.]

III. FLORENCE, 1494-1496.

FLORENCE, LORENZO DI FRANCESCO DI ALOPA, 1494-1496. Type 5 (a, b, c).

17. 1494 Aug. 11. Anthologia. (a, b.) [Legrand 13.]
18. n.d. Γνώμαι μονόστιχοι (a, b.) [Legrand 16.]

19. n. d. Euripides. (*a, b.*) [Legrand 15.]
20. n. d. Kallimachos. (*a, b, c.*) [Legrand 14.]
21. 1496. Apollonios Rhodios. (*a, b, c.*) [Legrand 18.]
22. 1496. Lucian. (*a, b, c.*) [Legrand 19.]
23. n. d. Κέβητος πίναξ. (*a, b, c.*) [Doubtful.]
24. n. d. Chrusoloras. (*a, c.*) [Legrand 20. Doubtful.]

B. GRAECO-LATIN CLASS.

- I. BRESCIA, c. 1474.
[BRESCIA, THOMAS FERRANDUS, c. 1474?] Type 6.
25. n. d. Batrachomuomachia.
- II. VICENZA, c. 1475-76.
[VICENZA, GIOVANNI DA RENO? c. 1475-76.] Type 7.
26. n. d. Chrusoloras, Erotemata.
- III. PARMA, c. 1481.
[PARMA, UNKNOWN PRINTER, 1480-81.] Type 8.
27. n. d. Chrusoloras, Erotemata.
- IV. VICENZA—VENICE, 1483-1484.
i. VICENZA, DIONYSIUS BERTOCHUS, 1483. Type 9.
28. n. d. Crastonus, Vocabularius.
29. 1483 Nov. 16. Crastonus, Lexicon.
ii. VENICE, PEREGRINO PASQUALE, 1484. Type 9.
30. 1484 Feb. 10. Chrusoloras, Erotemata.
- V. VICENZA, 1489-1491.
VICENZA, LEONARDUS ACHATES, 1489-1491. Type 10, 10*.
31. 1489 June 15. Laskaris, Epitome. (Type 10.)
32. n. d. Laskaris, περὶ ὀνόματος καὶ ῥήματος. (Type 10.) [Legrand 6.]
33. 1490 Sept. 1. Chrusoloras, Erotemata. (Type 10*.)
34. 1491 Dec. 23. Chrusoloras, Erotemata. (Type 10*.)

C. LATER GREEK PRESSES.

- I. VENICE, 1494-1500...
VENICE, ALDUS MANUTIUS, 1494-1500... Types 11*, 11-13.
35. 1495 Feb.-March. Laskaris, Erotemata. (Type 11*.) [Legrand 12.]
36. n. d. Mousaios (Greek text). (Type 11.) [Legrand 10.]
37. n. d. Galeomuomachia. (Type 11.) [Legrand 9.]

38. 1495 Nov. 1. Aristotle, Organon, &c. (Type 11.)
39. 1495 Dec. 25. Th. Gaza, Grammatica. (Type 11.) [Legrand 17.]
40. 1496 Feb. Theokritos, &c. (Type 11.)
41. 1496 Aug. Thesaurus, &c. (Types 11, 12.)
42. 1497 Jan. Aristotle, History of Animals, &c. (Types 11, 12.)
43. 1497 Jan. Vrbanus Bolzanus, Grammatica. (Type 12.)
44. 1497 Feb. Aristotle, Physics, &c. (Type 11, 12.)
45. 1497 June 1. Theophrastos, Natural History, &c. (Types 11, 12.)
46. n.d. Psalter. (Types 11, 12.) [Legrand 11.]
47. 1497 Dec. 5. Horae. (Type 12.)
48. 1497 Dec. Crastonus, Lexicon. (Type 12.)
49. 1498 June. Aristotle, Ethics, &c. (Type 11, 12.)
50. 1498 July 15. Aristophanes. (Types 11, 12.) [Legrand 21.]
51. 1499 March-April. Collection of Greek Letters. (Type 12.) [Legrand 22.]
52. 1499 June-Oct. Astronomici ueteres. (Type 12.)
53. 1499 July. Dioskorides. (Types 12, 13.)

II. REGGIO—MODENA, 1497-1500.

i. REGGIO, DIONYSIUS BERTOCHUS, 1497. Type 14.

54. 1497. Aesop.
55. 1497. Crastonus, Vocabularius.

ii. MODENA, D. BERTOCHUS, 1499. Type 14.

56. 1499 Oct. 20. Crastonus, Lexicon.

III. VENICE—MILANO, 1498-1499.

i. VENICE, PELUSIUS, BRACIUS, BISSOLUS AND MANGIUS, 1498. Type 15.

57. 1498 June 18. Phalaris.
58. 1498. Aesop.

ii. MILANO, BISSOLUS AND MANGIUS, 1499. Types 15*, 16.

59. 1499 Nov. 15. Souidas. [Legrand 25.]

IV. VENICE, 1499-1500.

VENICE, ZACHARIAS KALLIERGES, 1499. Type 17.

60. 1499 July 24. Ἑτυμολογικὸν μέγα. [Legrand 23.]
61. 1499 Oct. 26. Simplicios. [Legrand 24.]
62. 1500 May 25. Ammonios. [Legrand 27.]
63. 1500 Oct. 5. Galen. [Legrand 29.]

The Erotemata of Konstantinos Laskaris were printed at Milano ^{Milano,}
by Dionysius Paravisinus, and are dated 30 January 1476, which ^{Dionysius}
may or may not mean 1477, according to our present reckoning. ^{Paravisinus}
^{and Dem.}
Paravisinus, or Pallavicino, has been the subject of a biography by ^{Damilas,}
1476.

Sig. Motta, but I have been unable to obtain a copy of his book. Besides being the printer of the Laskaris, Paravisinus had been 'prototypographus' in two places. In January, 1473, he printed the first book at Cremona in partnership with Stephanus de Merlinis of Lecco, and in the next year joined with one Ambrosius of Orco in establishing the first press at Como; the date of their first and only book is 9 August 1474. We next find him at Milano as printer of the Laskaris, after which he joined another fellow-craftsman, Domenico da Vespolate, in 1478, in the printing of an edition of the Grammar of Perottus. We hear no more of him; but it seems from his never printing more than one book in each of four successive attempts, at intervals of two years or less, that he was not a successful man of business. Prefixed to the Laskaris is a preface, both in Greek and Latin, by one Δημήτριος ὁ Κρής, or Demetrius Cretensis. He is also called Demetrius Mediolanensis in the Homer of 1488, and was, according to Legrand, the son of Milanese parents who settled in Krete, and there obtained or took the surname Damilas (i. e. da Milano). His preface shows that he was responsible for the character of the type and for the printing of the book, and may mean that he was not only the inventor and owner, but also the actual cutter of the punches. I shall return to this point later, and will in this place only transcribe the Latin version, in which the references to the difficulties encountered by him should be noted.

Preface of
Damilas.

'Demetrius Cretensis ingenuis ac studiosissimis adolescentibus salutem. Cum uos rerum bonarum ac literarum graecarum adipiscendae disciplinae studiosos uiderem, sane et uestram tam egregiam ad huiusmodi res intentionem non iniuria sum admiratus: et animi uestri generositatem excellentiamque beatam existimans, multum ac diu cogitabam qua in re uobis graëcae amantissimis disciplinae gratificari possem, et quod studio uestro dignum gratumque esset praestarem. Haec igitur animo uolutans inueniebam uobis quidem pergratum ac nihilominus utile fore, si uobis copia librorum graecorum sine multa impensa difficultateque esset, quo et ad discendum impensius et propositum uobis libentiori animo assequendum alacriores essetis, mihi uero optatissimum memoratuque dignum, si quid tale uestra meaque causa recte efficere possem. Quapropter cum multum mente, plurimum uero experientia laborauimus, uix tandem inueni quonam modo libri quoque graeci imprimerentur, tum literarum com-

positione, quae uaria et multiplex penes literas graecas existat, tum maxime locis accentuum seruatis; quod profecto arduum erat, nec parua indigebat consideratione. Visum itaque mihi est primo Constantini grammaticam imprimere, uiri sane disertum grammaticumque diligentissimi; cum ualde dilucidam apprimeque incohantibus utilem, tum etiam periculum [gr. ἀπὸπειραν] uestri facturam, siquidem et uobis haec res pluris aestimata sit, et a nobis minus frustra elaborata; deinde, si res ex sententia cesserit maiora quoque atque praestantiora deo uolente attingere. Vestri itaque erit, optimi adulescentes, ac uestrae naturae ingenuae studiique praestantis, desiderium uestrum erga literas graecas re ipsa iam confirmare, quae profecto non paruo adiumento uobis ad omnem uirtutem doctrinamque erunt, et huiusmodi nactis occasionem grammatica a uobis accurate intellecta, praeceptaque ad altiora deinceps, fauente deo, eniti, nosque promptiores reddere ad multa plura pulchrioraque uobis gratificandum. Valete.'

Interesting as this preface is, our principal concern is with the sentence beginning at the word Quapropter. Damilas there says that his difficulties arose (1) from the variety and complexity of the composition of Greek letters, and (2) from the accents. By the first of these he probably refers to the assumed necessity of producing an appearance of continuity by bringing the letters close together. I have already referred to this peculiarity of this type, and may here go into the matter in somewhat greater detail. There can be no reasonable doubt, after making every allowance for the spreading of the impression due to the sloppiness of the ink, that something of the sort was done. Firstly, the type is carefully designed to bring certain letters into the closest possible contiguity by means of specially designed varieties of those letters; so that in some cases, like the $\mu\eta$ of $\delta\mu\eta\rho\varsigma$ in line 6 of the facsimile (plate I), the $\mu\epsilon$ of $\mu\epsilon\nu$, and the $\sigma\omega$ of $\phi\iota\lambda\eta\sigma\omega$ in line 8, or $\alpha\sigma\omega$ in line 19, the two or three letters seem as printed to be almost without any apparent break. In the two forms of α used in $\pi\alpha\rho\alpha\lambda\eta\gamma\epsilon\iota$, line 7, the first has the last stroke purposely lengthened; so with the μ in two of the instances quoted above; compare $\delta\mu\eta\rho\varsigma$, line 6, with the next word $\mu\epsilon\theta\omicron\nu$; here, $\omicron$ being a letter widest at the top, the μ does not nearly touch it. But for the same reason σ in $\sigma\acute{\upsilon}$ (last line) does almost touch the $\acute{\upsilon}$. In many cases, as in $\alpha\mu\phi\acute{o}\tau\epsilon\rho\omicron\nu$ in line 10, it is by no means

'Compositio
literarum.'

evident at first sight that the letters are really separate sorts. Secondly, in the word *παράλῃγει* (line 7) the second α, which is not the joining form of the letter, partly overlaps the left-hand lower limb of the λ; the same is equally conspicuous in the words *καλῶ*, *καλέσω* (line 9), where the indentation made on the λ by the α is quite clear. It occurs again in lines 21, 22, and (with ᾱ) 24. A similar instance of impact may be seen in τῆν, line 12; here τ is the joining-form of the letter, though the ordinary τ is often very close to the next letter, as in τι, line 24; τι with the joining-form of τ is found in line 22. The κ overlaps occasionally, as in οἰκῶ, line 1, or κῆσω, line 2. The tall α, the last letter in line 12, is adapted for the overlapping of the preceding letter, as in this case of the π; ρ, σ, σσ, χ also, being letters which have a projecting stroke at the top, are found in similar conjunction with this α. Other combinations of the same kind are αχ, υχ, αζ, αξ, and both forms of π with λ; in all alike there is no doubt either that they are fitted into one another, or that they are each made up of two letters separately cast.

We now come to the tall ρ and τ: the former overhangs some letters a little, especially those like λ, which spread outwards at the foot, but the τ is far more striking. In somewhat the same way as the f in a roman or gothic fount is adapted either by filing or kerning, to get the following letter under its projecting stroke, so as to avoid an ugly gap in a word, so the high τ which is found in most early Greek founts is arranged with reference to the preceding letter, and once, in the second Milanese type, to the letters both preceding and following. On our facsimile the examples found are στ (lines 8, 17), ντ (13, 18, 19), εντ (15, 16), υντ (14), ττ (13). In all these cases the letter before the τ stands underneath the top stroke of the τ. More striking still are the instances in which accented vowels are thus managed; there is no good example on this page, for in τόρε (line 7), though the ó is not independent of the τ, it does not stand under it. In most cases of this sort the horizontal stroke of the τ fits in between the letter and its accent; it is extremely puzzling to know how this was done. The easiest way for the printer was obviously to cast the combinations as a single sort; but there can be no reasonable doubt, from the evidence of all the Greek types and the analogy of Latin ones, that the printers had some method of combining separate sorts in this way, which they

preferred to casting them in one piece. If the $\nu\tau$ in μέλλοντος (line 18) be compared with the same two letters in μέλλοντα (line 19), it will be seen that there is more space between the ν and the τ in the first than in the second instance. The same thing is found elsewhere with $\epsilon\tau$. The ι (line 1) and υ (line 6) are peculiarly clumsy, and are oddly shaped. These characteristics are exactly reproduced in the $\iota\tau$ and $\upsilon\tau$. So with the ι (line 1), which is unusually high and thick. There are two forms of ω ; one has the accent over the centre, one has it at one side; both these are combined with the high τ . The $\acute{\omega}$, found in the last line of the facsimile, is a narrow letter; the wider ω alone is used with τ , but the $\acute{\omega}$ in $\acute{\omega}\tau$ is the same as when it is used alone. Of these six instances five are accented letters, and therefore the strongest possible evidence. All three forms of α are found combined with the τ , a very improbable circumstance if the two letters were made in one piece. In rare instances, the accented letter is not under the τ , but is either (as in τόρε, line 7) only slightly overhung, or is altogether separate. When this τ comes at the beginning of a word, as in lines 8 and 9, the τ is separate, but no additional space is as a rule left; an exception to this occurs in line 2. In διὰ τοῦ (line 16), and generally where $\acute{\alpha}\tau$ or $\sigma\tau$ come next to one another in different words, the τ still slightly overhangs the α . In one place where $\upsilon\tau$ is found, the two letters belong to different words, but by error they have been combined; the same occurs once also with $\delta\tau$. The combination $\pi\tau$, which occurs frequently, must be considered as a single sort; they are in actual touch, and the slope of the π is different from that of π used alone. The π of line 1 is never combined with τ .

This then is what in my opinion Damilas means when he ^{Accents.} speaks of the 'compositio literarum.' The reasons for the practice have been given at length in chapter ii, and need not be repeated here. As to the accents, it is difficult to know exactly to what Damilas is referring, whether to the treatment of the accents in the cutting of the punches, or to the difficulty of securing accuracy in composition. This last could hardly present difficulties to a Hellenic compositor (if the book was really set up by a Hellene), and the context seems to show that it refers to the making of the type, not to its use. But there is no evidence at all that the accents are not made in one piece with the letters; indeed, they are obviously fixed,

and though of course the method adopted by Kallierges may have been anticipated by Damilas, there is nothing to show that it was, and it is improbable that at so early a date a device so elaborate should have been thought out. Besides, unless Kallierges were ignorant of the methods of his predecessors, which is unlikely, he could not have spent five years in discovering a process in use twenty years earlier. The non-occurrence of certain accented sorts, noticed below, and the invariable substitution for them of other sorts, seems to make any mechanical device for attaching the accents quite out of the question. I am therefore compelled to leave this question as it stands, merely stating my opinion that the accents were cut on one punch with the letters in the lower-case, as in the capitals, where they are usually right inside the letters. Damilas may have meant to refer only to the number of combinations it was necessary to cut.

The type of
the Laskaris,
1476.

I will conclude the discussion of this book with certain details of the fount, and a statement of its relative completeness in this matter of accented letters. It is in body roughly a great primer type, though the face is a good deal smaller in proportion, and the white between the lines is very much pronounced. It consists approximately of fifty-five capital and one hundred and sixty-one lower-case sorts, seven breathings, hyphens, stops, and so on, besides ten special signs only used on leaf 4^a of the Laskaris. An exact computation is impossible, owing to the doubt whether certain breathings, as in the case of *ě* and one form of *ě*, are separate, or form part of the letter, but this does not involve a difference of more than four or five sorts. There is a full set of capitals, besides a certain number of accented vowels. The accents and breathings are, where it is possible, as in the *'H*, placed inside the letter in order to save space. As the capitals occupy the whole depth of the face, they look, when used in a line with lower-case, as if they were out of register: this peculiarity was copied by many succeeding printers. In the lower-case the combinations do not by any means amount to a complete set, many of them being replaced by other forms. It is difficult to decide as to certain letters; *ě* for instance is always printed *'e*, as in line 4, but whether the breathing is a separate sort is not clear; it occurs in the Homer in just the same form, and may have been cast thus in order to save the necessity of inserting a space before it, as it must, of course, always come at the

beginning of a word. The ϵ is also a very doubtful case; it certainly looks like ϵ , but may be another instance of the same thing. The η is printed as $\epsilon\eta$, the θ as $\epsilon\theta$, and the ι as $\epsilon\iota$; α , in which breathing and accent are side by side (as they are in β also), is found in the Crastonus, but, as it seems, not in the Laskaris. Other forms which are missing are β ϵ η ι κ λ μ ν ξ $\omicron$ υ ϕ ψ ω . For ω , which is very often wanted, $\omicron$ is always used. There are two forms of ι , one apparently separate, as $\epsilon\iota$, the other, very rarely used, being cast in one piece. Similarly we find ϵ , but ϵ is equally common, and it is the same with ι and $\epsilon\iota$. Of double or triple forms of letters, mostly owing to the addition of 'joining-forms,' which have the last stroke prolonged and kerned, there is a considerable number: thus α has three varieties, two of which occur in παράλῃει , line 7, and the third, a tall form, in line 12. There are two forms of α $\acute{\alpha}$ $\grave{\alpha}$ $\tilde{\alpha}$, corresponding with these. Of ϵ , besides the ordinary form, there is a second sort, represented in the facsimile by the ϵ in ἐνεστῶς , line 7, intended for use only before ν ; a third, semi-capital variety, is found in the Aesop, but only in combination, as ϵ and ϵ , in the Laskaris. This, the δ (line 4) and a second κ , which is sometimes found, form a small group of letters agreeing together, and of a different size from the rest of the type. In the Crastonus and the Aesop the proper ϵ of the fount is used. Of η there is a second set, consisting of η , η , η , η . It is represented in the facsimile by ϵ in the last line; η and η are found in no other form. There are two kinds of ω , the broad (as in ποιῶσω , line 1) and the narrow ($\omega\lambdaέσω$, line 10); ω has two forms, in one of which the accent is over the centre of the letter (as $\omega\kappa\omega$, line 1), and in the other at one side (ποιῶ , same line); ω has also two forms, the breathing and accent being placed side by side in one of them.

Of varieties in the consonants the following may be noted. Three kinds of γ are found; the first in λήγει , line 1; the second in συζητά , line 15; the third in προηγούμενου , line 25. There are two deltas, one being triangular; two thetas; two kappas, one being a quasi-capital form, as mentioned above; two forms of π , as in line 4, ἐπαινέσω παρά ; and three of τ , as in lines 2 and 10. The combinations of letter and apostrophe are δ' , θ' , λ' , π' , τ' , and ϕ' . Of ligatures or tied letters there are very few. The double vowels are $\alpha\iota$, $\alpha\upsilon$, $\epsilon\iota$, $\epsilon\upsilon$, $\upsilon\iota$, in sets more or less complete; the combinations of a vowel

and a consonant, $\epsilon\rho$, $\eta\nu$, $\acute{\eta}\nu$, $\grave{\eta}\nu$ (line 12), $\upsilon\nu$ (line 14), $\acute{\upsilon}\nu$, $\grave{\upsilon}\nu$; double consonants are $\pi\pi$, $\sigma\theta$, $\sigma\pi$ (line 15), $\sigma\sigma$ (line 6), $\sigma\tau$ (line 7), and probably $\tau\tau$ (line 13). The diphthongs $\alpha\upsilon$, $\omicron\iota$, $\omicron\upsilon$ are printed with two separate letters as $\acute{\alpha}\epsilon$, $\acute{\omicron}\iota$, $\acute{\omicron}\upsilon$. In contrast with the majority of the early types the iota subscript is used, but only two sorts, that without an accent and that with a circumflex, are cut of each vowel, and one or other of these is used wherever the iota subscript occurs, no matter what the right accent may be; the two sorts of η , η and $\acute{\eta}$, may be seen in lines 14 and 17.

Epigram of
Poliziano.

I have dwelt on this type at some length because it is the first of its kind, and possesses many features common to all early Greek founts, so that these will not need to be spoken of again. Before passing to the next group of books, I will give the epigram of Poliziano on Paravisinus and Damilas, from the works of Poliziano, Venice, 1498, sig. gg 6^b:—

'In Demetrium Cretensem, et Dionysium Parauisinum graecorum uoluminum impressores.

Qui colis aonidas, graios quoque uolue libellos,
namque illas genuit Graecia, non Latium.
En Parauisinus quanta hos Dionysius arte
imprimit, en quanto cernitis ingenio.
Te quoque Demetri, ponto circumsona Crete
tanti operis nobis edidit artificem.
Turce quid insultas? tu graeca uolumina perdis;
hi pariunt. hydrae nunc age colla seca.'

Disappear-
ance of
Damilas till
1488.

The Laskaris is the only book now extant as the joint work of Paravisinus and Damilas, and we must suppose either that sufficient capital was not forthcoming to enable them to continue the venture, or that some accident intervened. As the type reappears at latest in 1478, and the size of the Lexicon of Crastonus makes it certain that not much under a year was occupied in its production, we have a period of about eighteen or six months, according as we interpret the date of the Laskaris to mean 1476 or 1477 by our present reckoning, during which the curtain is drawn. When it is opened again a new set of actors are on the stage. Demetrios Damilas has vanished, and does not reappear till 1488; of Paravisinus also all we know further is that in April, 1478, he was still at Milano,

associated with Domenico da Vespolate, and therefore seemingly no longer his own master. After this date he finally disappears. The place of Damilas is now filled by Bonus Accursius of Pisa; we have to ask what connexion he had with the earlier press, and who took the place of Paravisinus as printer. In the first place it is to be observed that whether the type passed out of his hands or not, Damilas retained possession of the punches or matrices, or both, as the type was recast from them for the Homer of 1488, πόνω καὶ δεξιότητι Δημητρίου Μεδιολανέως. But it seems most likely that the type itself was no longer in his possession in 1478, and that Bonus Accursius was unable to get it recast when it was worn out; some such hypothesis seems necessary to account for the two facts, that both editor and printer disappear and are replaced by others, and that when the original type was used up a new fount was cut to replace it. The only other possible explanation is that both Damilas and Paravisinus were serving in the office of the new printers in a subordinate position; and, if it is assumed that Damilas was himself the cutter of the first type, which is an assumption by no means necessary, the strong resemblance between the two founts in point of style and in the skill of cutting can hardly be accounted for otherwise.

The part of Bonus Accursius in the business is fairly clear, and we must not press the 'Bonus Accursius impressit' of the Aesop and certain copies of the Psalter too closely. In his preface to the first part of the Aesop he uses the phrase 'imprimi curarem' of his share in the work, and the words in the preface to the Lexicon of Crastonus agree with this view of his position. He was in fact editor and general director of the work, and he employed a professional printer to do the actual business of printing. But the name of this printer is never given in any book, and, in the absence of any direct evidence, his identity can only be inferred; but this can be done with approximate certainty, for the larger Roman type used in conjunction with both the Greek founts in this series of books is such a remarkable one that it cannot be mistaken for any other. It is identical with the Roman type of the brothers Benignus and Joannes Antonius de Honate, which was used by them for Latin books at the same time (1477-1480); and until it can be shown that this type was in the hands of any other printer during those years, the claim of the

Bonus Accursius and his printers.

Honate brothers to be the printers of the Greek series of books must remain undisputed.

Books in the
first type.
Crastonus.

Two books were printed under the direction of Bonus Accursius with the Laskaris type, both without any date. The first of the two is the Lexicon of the Carmelite monk of Piacenza, Crastonus, some account of whom has been given in the introductory chapter. It is a folio of considerable size, printed in parallel columns of Greek and Latin. The Lexicon itself is preceded by two prefaces. That addressed to Francesco Ferrari by Crastonus himself comes first, and contains the following reference to the writer's relations with Bonus Accursius: 'Tanta in hac diem conflata est necessitudo et sanctissimi amoris et contubernii foedus, ut grande nefas existimarem, si quid imprimendum ei dedissem, nisi quod emendatissimum et consummatissimum fuisset.' The second preface is by the editor, and also speaks of his undertaking. After praising the writer, and explaining the plan of the work, he adds: 'Ego autem operam dedi, ut haec praecepta, ita ut dixi in ordinem redacta, imprimerentur.' The book itself bears no other indication of its origin; but an inscription at the end of one copy fixes a date after which it cannot have appeared. It runs thus: 'Hunc librum donavit uenerabilis et eximius grammaticae doctor, latinae scilicet ac graecae et hebraicae, dominus Petrus de Montagnana congregationi canonicorum regularium Lateranensium sancti Augustini, ita ut sit tantum ad usum dictorum canonicorum in monasterio sancti Ioannis in uiridario Paduae commorantium. 1478.'

Aesop.

The second book printed in the first type is an Aesop, also undated, but probably a little later than the Lexicon, though it is less ambitious, being smaller both in height and bulk. It consists of three parts: the first, which is wholly in Greek, contains the Life of Aesop by Maximos Planoudes, followed by the Fables; the second consists of the Latin translation by Rinucius of the Life. That these two are parts of a single undertaking is proved by the words in the preface of Bonus Accursius in which he dedicates the book to the ducal quaestor Torriano: 'Cum animaduerterem quanto in pretio et apud Platonem et apud uniuersam uetustatem Aesopus habitus fuerit, existimaui me facturum rem non indignam, si graecas eius fabellas et uitam una cum latina interpretatione imprimi curarem, quo diuulgarentur apud omnes.' The third part of the book, apparently an afterthought, is preceded by a second preface in which the earlier

portion is spoken of as 'codex superior.' It contains a selection from the Fables with a word-for-word Latin version over against it. The two languages are arranged so that the contents of each line correspond exactly in both languages, and in consequence the length of the lines is extremely irregular (see the reprint of 1497, plate XVIII). This defect was remedied in similar cases by later printers, such as Estienne in his Psalterium quintuplex of 1509, or Guillen in the Alcala polyglott Bible, by filling up the short lines with ornaments specially cast for the purpose. At the end of the Aesop is the colophon, already referred to: 'Bonus Accursius pisanus impressit: qui non doctorum hominum, sed rudium ac puerorum gratia hunc laborem suscepit.'

In both books the Greek type is identical in every particular with that of the Laskaris of 1476, except that certain letters are lost, and one, a ϕ , agreeing in size with the rest of the type, has been added. Among those that have disappeared are all forms of the tall α (the last letter in line 12 of plate I); the iota subscript; and (in the Lexicon) the semi-capital ϵ and its varieties; but in the Aesop this ϵ without accent is once or twice found. This great similarity to the Laskaris, and the uniformity of setting up, makes it probable that a compositor employed by Paravisinus had been engaged for the work by the printers of Bonus Accursius; it appears certain, indeed, that nowhere could a man be found who had experience in setting up Greek in type, except among those who had worked on the Laskaris. In all typographical details the Crastonus and Aesop are precisely similar, with the single exception just mentioned, and the Roman type is identical in both. The Greek shows signs of wear, but hardly more in the Aesop than in the Lexicon, and the occasional badness of press-work and inking makes arguments resting on the appearance of the type of little value. The absence of signatures in the first part of the Aesop may be taken to imply an earlier date than the Lexicon, which has them throughout; a more probable explanation is that the folders and binders, being no doubt Italians, did not understand the Greek letters, and the printer did not think it desirable to give roman signatures to a book wholly in Greek. The second and third parts, which are wholly or half Latin, have the signatures in roman letters.

The first type as used in the Crastonus and Aesop.

After the printing of these two books the first type vanishes, and

Second type.

is replaced by a new fount of similar, but bolder, design. We can hardly be mistaken in inferring from this fact that when his supply of type was worn out, Bonus Accursius or his printer had no means of recasting it, and therefore that the punches or matrices did not belong to him, but remained in the hands of their original owner. The reason for the change of type is not so easy to discover, and it is certain that Bonus Accursius had the use of a skilful designer and type-cutter, for the new fount is in no degree inferior to the old, while its larger size and the increased independence and self-reliance of its letters mark it as in many respects an advance on its predecessor. Though the face is so much larger, the increase in the body is only about eight per cent. (twenty lines measure 126 millimetres), and the same roman type, leaded when set up in parallel columns to the Greek, is used with it as with the earlier type.

Books
printed
with it.

Five books in all are printed with the new fount, but only two of them have any kind of date. The Psalter, Greek and Latin in parallel columns, has a colophon which is worded differently in different copies. In the majority it occupies a single line, and reads: 'Impressum Mediolani Anno Mcccc. Lxxxi die .xx. Septembris.' The others add after the second word: 'Impensa Bonaccursii Pisani,' begin a new line at 'die,' and read 'Setembris' for 'Septembris.' The Erotemata of Laskaris, also printed in parallel columns with a Latin version by Crastonus, has no colophon, but a preface by Bonus Accursius, addressed to Julius Pomponius, and dated 'Ex Mediolano .iii. Kalendas octobres. Mccccclxxx.' Though this is not necessarily the actual date of publication, it is at any rate near enough to it to prove that the Laskaris precedes the Psalter. Of the three undated books, probably the first is a little tract of extreme rarity, of which the only copy known to me is in the Spencer Collection at the John Rylands Library. It consists in its present condition of six leaves, but originally had eight; whether the two last were blank or not is uncertain, as although the text ends abruptly with the sixth leaf, the sense is complete, and there seems to be no possibility of comparison with other copies or editions. The book is a small octavo, printed on paper like that of the small quartos, as the Aesop, not on the large paper used for the Theokritos. The title-heading runs thus: 'Saxoli Pratensis uiri doctissimi de accentibus ac di-phthongis & formatione praeteritorum graecorum.' The text is printed

Saxolus.

in the large roman type of the Crastonus and Aesop, and the second Greek type. The next book is a Latin-Greek vocabulary by Cras- Vocabulary. tonus; this is printed on the large paper, and though an octavo, is as tall as the quarto Aesop. Typographical peculiarities show that these two books, the Saxolus and the Crastonus, are earlier than the other three, and that the Psalter is the last of the five. But the relative position of the Theokritos and Laskaris is not easy to fix. Two forms of the letters ζ and ξ are used with this second Theokritos and Laskaris. type and appear in the page from the Theokritos reproduced on plate II; one form is very large (ζ, line 11; ξ, line 6) and the other smaller (lines 1 and 12 respectively). There can be no doubt that the tall ones are the earlier, and that the shorter forms, which are not kerned, were introduced for convenience, to avoid difficulties like that on sig. C 6^b of the Vocabulary, where ζ comes in the same position in three successive lines; here the middle one had to be omitted and stamped in afterwards by hand in each copy. The same trouble occurred of course whenever two of these letters came together. Of the five books the Saxolus and Vocabulary contain only the earlier and larger forms of these two letters. The Laskaris has both forms of ξ, but apparently is without the shorter ζ; all four letters are found in the Theokritos and Psalter. This tells in favour of the priority of the Laskaris; on the other hand, an additional ε, of a curious design, very like that seen in the word ελθὲ in line 5 of the page from the Venetian Psalter of 1486 (plate V), is largely used in the Vocabulary, and occurs once on the first page of the Theokritos; it seems not to be found elsewhere in that book, or at all in the Laskaris and Psalter. But of course a single occurrence of a letter may well have been merely accidental, and is of little value as evidence. The use of red ink for printing the headings in the Theokritos is certainly not successful, and has the air of an experiment. In the Vocabulary there was no opportunity for its use, but the headings of the Laskaris and Psalter give full scope for red printing, and are in both cases printed in black throughout. On the whole, I am inclined, perhaps against the balance of evidence, to place the Theokritos first of the two; this leaves the better part of a year free for the printing of the Psalter, a large and in some respects difficult undertaking, and gives a more intelligible order to the whole series.

Psalter, 1481.

The Psalter differs from the rest, not only by its possession of an imprint, but also in the fact that the roman type in which the preface of Crastonus to the bishop of Bergamo is set up is different from that used for the Latin text of the Psalter, which is identical with that found in the four other books. It is much smaller than the great primer fount (being of a body not much larger than english), and obviously a copy of it on a smaller scale. But besides this, there are included in it some words in a Greek type of the same

α η θ ι μ ν ρ τ χ

FIG. 22. MILANO, BONUS ACCURSIUS, 1481.

body, and therefore much smaller than either of the two other Milanese Greek types, though agreeing with them in its general appearance. It seems probable that these isolated words are part of a complete fount, though I am not aware that either roman or Greek were ever used in any other book. The letters which occur in the preface are: α η θ ι μ ν ρ τ χ. The facsimile of these letters given here (fig. 22) has been made from a tracing.

Description
of the second
fount.

Returning to the larger type, we observe at once that it is evidently the work of a skilled and experienced hand. The strong resemblance in all essential points to the fount of 1476, and the difficulty of imagining a second man at that time competent to cut such a type, especially one that combines originality with so much of the technique of the earlier character, forces us to believe that the same hand produced both. If this is so, then either Damilas did not design and cut the punches for the type of 1476 himself, or possibly Bonus Accursius or his printer may have commissioned the new type from Damilas, who, it must be remembered, may have filled some subordinate post in the Bonus Accursius press, in which he had not the right to prevent the suppression of his name. Speaking generally, the chief difference of the two founts is in the larger face of the second, the letters being taller in proportion to their breadth, more upright, and drawn with bolder and firmer, if less graceful, strokes; both in intention and effect it is distinctly less cursive, though in some few cases distinct traces of an effort to connect the letters by means of kerning are still found. In detail also the variation is but small. The later type is certainly the more

complete as regards accents and breathings; there is also a considerable number of consonants with apostrophe, such as δ' (plate II, line 1), κ' (line 30), λ' (line 3), τ' (line 13); and some of the vowels have both breathing and apostrophe, as 'α in line 16. Other new forms are ι and υ with diaeresis and accent (as ι̇, line 15); but the new type agrees with the older one in its possession of the iota subscript; η̣ is found in line 12 of plate II. One curious similarity of the two founts is the presence in the second of larger forms of ε̇, ε̇, and κ (line 27) exactly parallel to the anomalous ε̇, ε̇, κ, and ο̇ of the earlier fount. The ι̇ is quite unique, as the accent is turned sideways and intertwined with the breathing, no doubt on account of the narrowness of the letter. The high ρ (the low ρ, though found here and there, is very rarely used) is slightly hollowed out, but only very slightly; but the high τ, which is fairly common, but as it happens does not occur on plate II, is undercut on both sides of the perpendicular. There can be no doubt that it is a separate letter in every case, even in combination with π or a low τ. In one instance, on sig. ρ 2^a, where this τ comes after an ε̇, it has been forced up sideways by the pressure of the upper surface of the accent against the underside of the cross-stroke of the τ. The number of double letters and ligatures is not large; αι, αυ, ει, ευ, and υν, with a few of their accented sorts, among the vowels, and of the consonants, λλ, σθ, σπ, σσ, στ, seem to complete the list. The change, apart from actual design, which is most noticeable in the later type, is the great increase in the number of varieties of single letters. Where these are found in the fount of 1476 they are generally there for some definite purpose; they either represent kerned and unkerneed sorts, or if not, they show a manifest divergence in form. The three kinds of α illustrate both these alternatives. But in the second type many of the variations are apparently without object; the differences between them are so small as to be difficult of detection, and certainly insufficient, if the object were to give variety to the appearance of the fount, to produce any such effect. Some of the duplicate forms, the ζ and ξ, were made with a definite aim, as explained above; but instances like the two forms of α, ν, or σ, the varieties of τ, which are specially bewildering, and to a less extent the μ (as in ε̇μμεναι, line 12), φ, χ, and ω, are difficult to explain in any reasonable way. But, whatever the object, it is clear that it

was one to which the designer of the type attached great importance, however inconceivable to us it may be; and the constantly growing tendency thus to multiply almost identical sorts observable among the printers of Greek in early times shows that he was not alone in his opinion, though the differences are seldom as small as in his case.

The first
type at
Florence.

This second type of the Milanese presses was disused after the end of 1481, but its punches remained in the city, and were brought to light once more eleven years later, when the appointment of Demetrios Chalkondulas to the Greek chair caused a renewed stir of life. But before treating of this later Milanese work it is necessary, keeping chronological order, to follow the fortunes of the type of 1476. The punches or matrices of this fount, as has been seen, remained in the possession of Damilas when the actual type used in 1476 passed out of his hands, and in 1488 a new type cast from these makes its appearance under the patronage of Chalkondulas at Florence. Only four books, so far as is known, were printed with this revived fount, and the three of these which are dated were issued at wide intervals; the Homer was issued in 1488, the Proverbs of Zenobios were published by Filippo Giunta in 1497, and the Orpheus by the same publisher in 1500. The undated book is an octavo edition of the Erotemata of Chrusoloras.

The printer
of the
Homer, 1488.

What do we learn from these books of the persons who were responsible for them? The fullest information is given in the colophon of the Homer, which is as follows: ἡ τοῦ Ὀμήρου ποιήσεως ἅπασα ἐντυπωθεῖσα πέρας εἵληφεν ἥδη σὺν θεῷ ἐν Φλωρεντίᾳ, ἀναλώμασι μὲν τῶν εὐγενῶν καὶ ἀγαθῶν ἀνδρῶν καὶ περὶ λόγους ἑλληνικοὺς σπουδαίων Βερνάρδου καὶ Νηρίου Ταναΐδος τοῦ Νεριλίου φλωρεντίνοι· πόνῳ δὲ καὶ δεξιότητι Δημητρίου μεδιολανέως κρητῆς, τῶν λογίων ἀνδρῶν χάριν καὶ λόγων ἑλληνικῶν ἐπιμεμένων, ἔτει τῷ ἀπὸ τῆς Χριστοῦ γενήσεως χιλιοστῷ τετρακοσιοστῷ ὀγδοηκοστῷ ὀγδόῳ μηνὸς Δεκεμβρίου ἐννάτῃ. Further we learn from the preface of Chalkondulas that he edited the text for this edition. His share in the work and that of the Nerli brothers are clear; what remains doubtful is the position of Damilas in regard to it. For this we gain no help from the two later books, which only name Giunta, the publisher; 'impensis et cura Phylippi de zunta Florentini,' in 1497; 'impensa Philippi Iuntae bibliopolae' in 1500.

There can be no doubt that the Greek type is the same in all

three books. Are we to suppose then that Damilas was the printer of all these; that he remained in Florence as a printer for thirteen years, without producing anything for nine years consecutively; or was he the printer of the Homer, not of the Giunta books? It has always been taken for granted that he was the actual printer of the Homer, though the fact that not he, but Paravisinus, printed the Laskaris of 1476, might have suggested a doubt. We may seek a solution of the problem in an examination of the Roman types used in the books under discussion. In the Homer two such types are used; an english roman for the dedication to Piero de' Medici, and a larger roman for the signatures. In the Zenobios the Latin portion is in gothic; the Orpheus has a colophon in the english roman of the Homer, issued twelve years before.

Looking through Florentine books in search of these types used elsewhere we are not long in finding a considerable number, though it is more difficult to come across any in which either date or the name of the printer is given. Such are however to be found. To begin at the wrong end—the book entitled *Scrutinium Consiliorum*, by Agostino da Novi, an Augustinian canon at Padova, dated April 25, 1500, is printed in the two roman types of the Homer (the smaller, as already mentioned, being used in the Orpheus of September, 1500); and the printer's name is there given as 'Bartholomaeus pres. Florentinus.' Three years earlier the Logic of Savonarola, printed 'per Bartholomaeum de Libris,' is set up in the same smaller roman in combination with the gothic found in the Zenobios of the same year. The Florentine Histories of Bruni and Poggio are in the larger roman, 'impresso per Bartholomeo p. fiorentino,' and dated 1492. Lastly, in 1487 editions of the Corbaccio and the Epistola a Pino de' Rossi, both by Boccaccio, were printed by 'B. di Francesco Fiorentino' in the same type as the books of 1492, that is in the type used for the signatures in the Homer of 1488; and in the same year the smaller roman is used in a 'Lamento di Costantinopoli,' which has no printer's name.

Now since there can be no reasonable doubt that these variations of name always refer to a single man, this result has been attained; that all three types we are in search of were used by a single printer at intervals ranging from 1487 to 1500, the exact period covered by the Greek books. The wide intervals between the signed books, in

Share of
Damilas in
the work.

the case of those in Latin and Italian, is apparent only, not real; for every book with name or date there are at least twenty without one or the other, and a continuous series of at least two hundred books may be drawn up, reaching from 1482 to 1500, and including very various branches of literature. Bartolommeo di Libri was in fact, if the evidence may be trusted, one of the most prolific and most reticent of all early printers. As the intermittency of the Greek books is a strong argument in favour of a single printer whose staple productions were in other languages, and the fact that the larger type in the Homer is used only for the signatures points conclusively to its not being a loan (for the smaller fount would have answered the purpose equally well), it is necessary to discover the exact meaning of the words *πόνος καὶ δεξιότητι* as applied to the share of Demetrios Damilas in the Homer. To me it seems clear that they refer primarily if not solely to his possession of the matrices or punches, and to his labour and skill (*πόνος καὶ δεξιότης*) in recasting the type and making the new sorts used in the Homer and its successors. That the type is recast, though on the same body, may be proved by tracing a word in one book and placing it on the same word in the other; for instance, the word *κύκλωψ* occupies just one millimetre more in the Homer than it does in the Laskaris. If the same process be repeated with the Aesop, the identity of the type in the Laskaris and the Aesop is seen at once. But Damilas may well have taken a more active share in the actual composition of the work. The correctness of the text in the Homer implies a proportionate amount of experience and skill in the setting-up, and we know that, like Paravisinus, Libri, though an excellent printer, can have had no previous experience in Greek printing, unless he learnt his business under Bonus Accursius at Milan. This is quite possible, as far as dates go, because Libri's first dated book appeared eleven months after the Psalter of Dec. 1481, but the character of his types points to a connexion of Libri with Naples, and he was more probably the companion of his fellow-citizen, Francesco di Dino, who after being for some years a printer at Naples, returned to his native place in 1481, or at the end of 1480. So that it is quite open to those who consider the words of the Homer colophon respecting Damilas to be insufficiently accounted for by his connexion with the type, joined with Libri's habitual reticence, to contend that he must also

be taken to have exercised a direct supervision over the printing of the Homer. But it is as certain as anything inferred from indirect evidence can be that the Homer was produced by the press of Bartolommeo di Libri, and there is nothing to show that any one else except Giunta had any part in the printing of the other three books.

The points in which the type, as recast for the Homer, differs from the original fount of 1476 may be briefly summarised. The ^{The type in 1476 and 1488.} iota subscript reappears, and the second sort of ε, found as ě in the Laskaris, and without the breathing in the Aesop, is used, also without a breathing, in 1488. The Homer also agrees with the Crastonus and Aesop in the rejection of the angular α sorts used in the Laskaris. A considerable number of variant forms of the same letter, especially those adapted to fit closely on to the succeeding letter, have vanished along with that practice; on the other hand, accented sorts lacking in 1476, such as ě, ĭ, have been added, together with double letters, as αŭ, ḡv, ŭv; the αŭ may have existed in the first fount, as αŭ (in the form áŭ) is used in the Aesop. The number of consonants with an apostrophe is increased by a second δ', π', and others; and several accented capitals have been added to the limited number existing in 1476. These and the other additions fall, taken roughly, into two groups, the one consisting of those which harmonise with the rest of the type, and the other of those which are more or less out of keeping with it in point of size or character. Of the former, the sorts which may be called new, and are not (like ḡv, ŭĭ, ŭv) merely supplementary varieties of previously existing combinations, are a certain number of tied letters, such as ḁλλ and ḃλλ (plate III, line 8), μέν (line 2), τρ (line 2; this is undercut on the left side for the insertion of short letters), and a series of ou-forms. Of the second class the most striking are a new semi-capital κ (line 3), much larger than the older one of the same kind, ετ (line 8), ěτ, ěτ (line 30), and εĭ (line 15), εŭ (line 28). A few other points may be noted before passing on; a second β (line 7) has been added, and is used side by side with the older one; the open θ seems to be absent from the Homer, but is found again in the later books. A new ě (line 6) has almost ousted the original letter, which nevertheless occurs occasionally; it is quite common in the Zenobios and Orpheus. The ǒ (line 4) is the same as that in the Laskaris, though the Crastonus and Aesop contain one of the right size. The ĩ first appears in the Homer; the concurrent

use of δ' as one sort (line 1) and as two (line 9) is also noticeable. In the analysis of the sorts used in plate III I have marked with an asterisk those occurring on that page which appear in the Homer for the first time.

Other
Florentine
books.

Of the three remaining books of the first Florentine press the undated Chrusoloras, an octavo, may be taken first. It contains the Greek text only. It is more in agreement with the Giunta group than with the Homer, and may perhaps be placed about 1496. Compared with the Homer, the principal differences are the introduction of a third, rather squat ξ, and the revival of some of the older letters largely or altogether disused in 1488. Thus the open θ is common, and the oldest ξ is here more often used than the two later sorts. The large new ευ-forms have almost vanished in favour of the originals, ευ alone being found, and that only towards the end of the book. The Zenobios and Orpheus agree substantially with the Chrusoloras; both are quartos, with Latin colophons; the first has also a Latin preface addressed to Giorgia Dati by Benedetto Ricardini. The Orpheus is distinguished by a woodcut headpiece and initial printed in red, doubtless a tribute to the influence of Kallierges.

Revival of
second type
at Milano.

Meanwhile at Milano the printing of Greek had been once more taken up. Demetrios Chalkondulas had, as has been mentioned, returned thither from Florence in 1492, and he seems to have given an immediate impulse to both printers and scholars. His arrival happened at a fortunate time, for the workshop of the brothers Honate had been broken up in 1490, when they finally moved to Pavia, and the punches of the second fount used by Bonus Accursius no doubt came to light at the same time. They seem to have been bought by Ulrich Scinzenzeler, then the leading, though not the senior printer in the city. He was naturally not disinclined to make use of his acquisition, and fell in readily with the suggestions of the newly appointed professor. A new type was cast from the punches, reproducing the older fount with few variations. Three citizens,

Isokrates,
1493.

secretaries to the Duke, were found willing to share the cost, and in January, 1493, which may be 1494 by modern reckoning, the orations of Isokrates, a small folio, were issued with the following colophon: 'Ετελειώθη σὺν θεῷ τὸ παρὸν βιβλίον Ἰσοκράτους ἐν Μεδιολάνῳ, διορθωθὲν μὲν ὑπὸ Δημητρίου τοῦ Χαλκονδύλου, τυπωθὲν δὲ καὶ συντεθὲν ὑπὸ Ἑρρίκου τοῦ γερμανοῦ καὶ Σεβαστιανοῦ τοῦ ἐκ Ποντρεμούλου· τὸ δ' ἀνάλωμα

πεποιήκασιν οἱ τοῦ λαμπροτάτου ἡγεμόνος Μεδιολάνου γραμματεῖς Βαρβολομαῖος Σκύσας, Βικέντιος Ἀλίπραντος, Βαρβολομαῖος Ῥόζωνος, ἔτει τῷ ἀπὸ τῆς Χριστοῦ γεννήσεως χιλιοστῷ τετρακοσιοστῷ ἑνενηκοστῷ τρίτῳ μηνὸς Ἰανουαρίου εἰκοστῇ τετάρτῃ. The device of Ulrich Scinzenzeler follows: but the printers named in the colophon are Henry the German and Sebastiano of Pontremolo. Henry the German, or Heinrich Scinzenzeler, was probably a brother of Ulrich, and worked in his office. Four Latin books containing his name as printer were issued at different dates from 1488 to 1496, and the types used are (probably in every case) those of Ulrich. Of Sebastiano, nothing is known; it is possible that he had experience in Greek printing, gained from the older Milanese press, or from one of those afterwards established; some one accustomed to such work must have been employed in the composition of the *Isokrates*, the skilful hand being apparent throughout; and his share in the work may have entitled him to an association with the master-printer's brother in the colophon. The venture seems to have been unsuccessful, if it be not that an unusually large number of copies were printed; for M. Legrand, in his *Bibliographie Hellénique* (I. p. 17), has drawn attention to the fact that the *Bibliothèque Nationale* contains a copy which was reissued in 1535 with a new title-page and colophon in Greek and Latin; the last leaf of the first quire and the first leaf of the last quire being also reprinted. The Latin title runs thus: 'Isocratis Orationes XXI. alias a Demetrio Calcondylo primum Mediolani correctae, et editae: nunc autem iterum accurate recognitae et impressae emittuntur. Venetiis M.D.XXXV. To make it worth while for a publisher to do this, the 'remainder' bought by him must have been of considerable size. But in face of the completer Aldine edition of the preceding year, even a lying title-page did not succeed in selling the book; and the copy at Paris seems to be the only one in this state known to exist.

One volume besides the *Isokrates* was printed with the same types. It consists of three independent parts, usually bound together, but shown by the separate errata to each, and the signatures, which are neither continuous nor supplementary, not to be connected otherwise than by identity of format and subject, and approximately identical date of production. They are three grammatical treatises; the first, containing signatures α to θ, is by Chalkondulas himself; it is entitled ἐρωτήματα συνοπτικά τῶν ὀκτῶ τοῦ λόγου μερῶν μετὰ τινῶν

χρησίων κανόνων. The title of the second (sig. α to ι) is as follows: Τοῦ σοφωτάτου καὶ λογιωτάτου κυροῦ Μανουῆλ τοῦ Μοσχοπούλου διορθωθέντων ἐρωτημάτων. The third, περὶ διαλέκτων τῶν παρὰ Κορίνθου παρεκβληθεισῶν, is anonymous, and has signatures α to ς. None of the three has any date or imprint, and it is a question whether they precede or follow the Isokrates. The absence of capitals tells in favour of the priority of the latter, and though Chalkondulas might have been expected to begin by printing his own work, which was doubtless used by him in his lectures as a text-book, the type certainly seems more worn in the grammar volume. The errata appended to the grammars also point in the same direction. The difference in the signatures, which are printed in roman capitals in the Isokrates, in Greek lower-case in the grammars, does not help to solve the problem.

Type of
these books.

The type of these books is that of 1480-81, which is larger than great primer, recast on a two-line brevier body, and consequently modified in several ways. These may be classified thus: (a) adjustment without alteration; (b) substitution of new forms for old; (c) disuse of older sorts; (d) addition of new sorts. The first of these processes was carried out partly by trimming the punches, partly by kerning the type in the mould. The lower-case letters which have been trimmed in such a way that part has been cut off are ς, δ, θ, ρ (usually), high τ, φ, and ψ. Of these the δ, θ and τ have been reduced in breadth, and the rest in height. It was felt that with the smaller body it was necessary also to reduce the whites in the line in order to avoid a ragged effect. The θ had the projections of its cross-stroke removed; the τ was docked of the right half of its horizontal stroke, so that letters now fitted under it only on the left side. As may be seen in the page of the Isokrates reproduced in plate IV, the kerning is chiefly confined to the accents; but some of the variations in these, as in ᾱ, ῥ, ῖ, and ῡ, which are tabulated in the analysis of the letters found in the plate, incline one to wonder if the accents were always fixed, though there is no real reason to doubt it. The substitution of new sorts for old ones was in the great majority of cases done with the object of decreasing the width of the letters; among them may be noted new forms of ζ, λλ, ν, ξ, σθ, and probably χ, though the gain in the case of this letter is not so clear. Other new sorts where no space seems to be gained are the two sigmas, σ and ς, and the series of eu-forms.

Of old letters disused on account of their over-expansiveness, and not replaced by corresponding fresh sorts, the most conspicuous are the open θ , and the ϕ with a loop at the top, representing the letter as written without raising the pen from the paper. A certain number of tied letters, such as the varieties of $\mu\nu$, also vanish. The disappearance of other letters may be accounted for on the ground of simplification of the fount by limiting the number of useless variations; many of those occurring in the page of Theokritos (plate II), for instance the narrow open ω , the τ , and at least one of the forms of μ and τ , are no longer to be found. Lastly, a certain number of new forms have been introduced, though without an exhaustive examination of the books printed with the type in its original state it is difficult to be sure which sorts are actually new and which old. But the semi-capital $\dot{\alpha}$ and $\dot{\alpha}$, only used at the beginning of words, the two-loop β (the original β is used, though it does not occur on plate IV), the θ of line 3 (that of line 4 being the old θ trimmed), and certain of the tied letters, as $\dot{\alpha}\nu$, $\dot{\alpha}\rho$, $\dot{\alpha}\rho$, ν , certainly seem to be found in 1493 for the first time.

We have thus passed in review the two original founts of the earliest Milanese presses, and the revival of each of the two as recast types at a later date, the first probably ten, the second twelve years after its use in its first form had ceased. The two imitations of the second type, the one at Vicenza in 1489, the other at Bologna in 1492, will have to be considered later; they are noteworthy, inasmuch as this type is the only one of those designed before Aldus which was directly copied by Italian printers. We have next to pass on to Venice, to a press of a widely different character from those we have considered hitherto.

The Venetian press of 1486 is certainly one of the most remarkable in the whole history of printing. It was worked by two Kretans, ^{Venetian press of 1486.} one a priest and the other a priest's son, of whom the one has signed the earlier, and the other the later, of the two books extant. The first of these is the *Batrachomumachia*, remarkable from the literary point of view by being ascribed both in the setting-off title and in the very bad verses ($\tau\omicron\upsilon\varsigma$ διδασκάλου κυρίου Μιχαήλ τοῦ Ἀποστόλη στιχοὶ οἱ αἴτιοι ἥρωικοὶ καὶ πολιτικοί—but they will not scan as either) at the end, to Tigres the Karian, an ascription which has been of late years revived. The text, both of the *Batrachomumachia* and of the

verses, is printed in alternate lines, the others containing a gloss printed throughout in red ink with very striking effect. It is a small book, consisting only of three quires (24 leaves); this fact, with the unusual amount of red printing, the character of the type, and the odd choice for a priestly printer, led me (see above, p. 12) to conjecture that this was a trial or specimen, intended to test the type and the method of printing in two colours, preparatory to the issue of a series of service-books, beginning with the Psalter, for which red and black printing would be indispensable. Of this series, if it were in truth ever projected, only the Psalter was completed, just a little less than seven months later than the issue of the first book. The Psalter is far the larger volume of the two, as it has seventeen quires, or 136 leaves; the headings and rubrics, initial letters (which are placed in the margin), and full stops are printed in red. The wording of the colophons in the two books is, *mutatis mutandis*, almost identical:—

Batrachomiuomachia.

Ἐν ὀνόματι τῆς ἁγίας τριάδος τοῦ πατρὸς καὶ τοῦ υἱοῦ καὶ τοῦ ἁγίου πνεύματος· σύνθεσις ἑμοῦ Λαονίκου Κρητὸς καὶ πρωτοθύτου Χανίων· ἐν ἔτει χιλιοστῷ τετρακοσιοστῷ ὀγδοηκοστῷ ἑκτῷ μηνὶ ἀπριλλίῳ εἰκοστῇ δευτέρᾳ, εἰς Βενετίαν.

Psalter.

Ἐν ὀνόματι τῆς ἁγίας τριάδος τοῦ πατρὸς καὶ τοῦ υἱοῦ καὶ τοῦ ἁγίου πνεύματος· σύνθεσις ἑμοῦ Ἀλεξάνδρου τοῦ ἀπὸ τοῦ Χάνδακος τῆς Κρήτης· υἱὸς δὲ τοῦ σοφωτάτου καὶ λογιωτάτου κυροῦ Γεωργίου ἱερέως τοῦ Ἀλεξάνδρου· ἐν ἔτει χιλιοστῷ τετρακοσιοστῷ ὀγδοηκοστῷ ἑκτῷ μηνὶ νοεμβρίῳ πέντε καὶ δεκάτῃ ἐν Βενεταίᾳ.

This close parallelism cannot be accidental, and together with the identity of type, format, and paper in the two books, it shows clearly that both were produced in a single office. It then becomes important to know the exact meaning of the word *σύνθεσις*, which is used in both colophons, and refers to different men. M. Legrand seems to take the word, which he paraphrases by '*éditeur*,' as indicating publication only on the part of the two Cretans; but I cannot believe that it means anything other than '*composition*' in a printer's sense, including, it may be, the production of the type as well as the setting up of the letters in the formes. That the Psalter at least

was set up by a man to whom Greek was a spoken language is A Greek shown beyond any possibility of doubt by the numerous instances of spelling according to the pronunciation which occur all through the book. Instances of this are ἔλεον for ἔλαιον, πεπεδυμένους for πεπεδημένους, ζεῖν for ζῆν, κατεγῖδι for καταιγῖδι, εὐρόντησεν for ἐβρόντησεν, ἐκλελυπότας for ἐκλελοιπότας, ὠδύγησεν for ὠδήγησεν, ἡμηνάμην for ἡμυνάμην, ἱεροῖς for ἱερεῖς, ἡγαποῖμένος for ἡγαπημένος, and, most striking of all, ἐπετήμισαι for ἐπετίμησε. It will be observed that the pronunciation is in each case identical whether the words are spelt in one way or the other. Other examples are: χρηστότιτι, ἱλυκαῖα, ὕψατο, διέστι, εἶν, θυγατέρας, χρυστός, φυλάσον, θλήγει, μέλη (μέλι), ῥῦσαι μαι (με), ἀνεβήβασεν. Two of these spellings occur in the page reproduced on plate V. M. Legrand devotes some space to conjectures as to the identity of Laonikos and Alexandros, or rather of Georgios Alexandrou, but without very definite result; it is probable, however, that the two were relatives, perhaps brothers (for the son of a priest of Kandia may well have been a priest at Kanea), that they are jointly responsible for the printing of the two books, and that the difference of name in these corresponds with the proportion of the work due to each of the printers.

The type is of the most remarkable and archaic kind, and seems to be modelled on the handwriting of very ancient liturgical manuscripts. It is entirely free from the various tricks, such as kerning, undercutting, and so forth, characteristic of the majority of early Greek founts, but it makes up for this in the almost incredible number of sorts employed in it. Of this aspect something has already been said in the second chapter, but it must be dealt with here at somewhat greater length. The number of sorts found in an examination amounts, as will be seen from the analysis given in connexion with plate V, to 1223. It must be remembered, however, that this is certainly not complete, as a considerable number of minor variations must have escaped my notice; moreover, there are in all probability sorts which are not used in these books, though their existence may be inferred; for instance, the occurrence in the αι forms of αι, αἰ, αῖ, αῖ, αῖ, αῖ, αῖ, αῖ, αῖ, αῖ, makes it pretty certain that αῖ and αῖ also existed. Similarly in the ας series, ας, ας, ας are wanting. Thus the number of sorts may be, I think, safely put down as not much, if at all, less than 1350.

The type;
its construction.

Against this has to be set the fact that many of the unaccented combinations are derived from those with accents by means of excision, a practice to which frequent reference has already been made. This may have appreciably diminished the number of punches to be cut. Several instances of possible or certain excision may be seen in plate V; without any doubt, the $\pi\omicron$ in line 17 has been made from the $\pi\acute{o}$ of line 14, and the $\pi\epsilon\iota$ of line 25 from $\pi\acute{\epsilon}\iota$ in line 20. Less certain but probable instances are $\rho\iota$ (line 6) from $\rho\acute{\iota}$ (5) or $\rho\grave{\iota}$ (3); $\tau\omega$ (7) from $\tau\acute{\omega}$ (9); $\tau\eta$ (10) from $\tau\acute{\eta}$ (7); $\pi\epsilon$ (17) from $\pi\acute{\epsilon}$ (14); $\delta\iota$ (4) from $\delta\acute{\iota}$ (17); $\alpha\nu$ (18) from $\alpha\acute{\nu}$ (17); $\sigma\iota$ (11) from $\sigma\acute{\iota}$ (23); $\delta\epsilon$ (23) from $\delta\acute{\epsilon}$ (8), and many others.

While the number of sorts is sufficiently astonishing, it is as nothing compared with what it would have been had all the possible combinations been carried out. An instance of what is and what might have been with a simple two-letter ligature will indicate the possibilities of combination in sorts consisting of three or four letters. Of each of the letters θ and ϵ there are two forms used when they are combined into a single sort; the open and closed θ , and the rounded and angular ϵ ; thus there actually are four varieties of $\theta\epsilon$, and there might be four of $\theta\acute{\epsilon}$, $\theta\grave{\epsilon}$ and $\theta\tilde{\epsilon}$, or even more, because the two existing forms of $\theta\acute{\epsilon}$ are both made with the closed θ and angular ϵ , but differ in the position of the accent. One of these is found in line 5 of plate V. Of $\theta\grave{\epsilon}$ and $\theta\tilde{\epsilon}$ there is only one form in each case; thus of thirteen possible accented forms, only four, and out of a possible total of seventeen, only eight are used. This is only one instance out of many; and of course with three letters the possible combinations are largely increased, as in the case of $\mu\epsilon\nu$ mentioned below; as most of the letters have at least two varieties, the number of sorts which might have been made of a single syllable is enormous. Then there are the four-letter sorts, such as $\sigma\theta\alpha\iota$ or $\sigma\theta\epsilon\nu$, of which there are a fair number; only one instance is found of five letters cast as a single type without abbreviation, the word $\mu\acute{\epsilon}\rho\alpha\varsigma$.

In reproducing a single page of so extensive a fount, the page being small and the type large, it is of course impossible to show anything but a very small proportion of the different sorts; but attention may be called to the occurrence in plate V of four forms of $\kappa\alpha\iota$, three of $\sigma\alpha\nu$ and $\alpha\grave{\iota}$, and two of $\kappa\omicron$, $\kappa\rho$, $\pi\epsilon$, λ , $\sigma\epsilon$ (the two last are both in one line), and many others. The largest number of

varieties of any one combination is in the syllable *μεν*, of which there are six different sorts (one occurs in line 12 of the facsimile): three of these are formed from three out of four varieties of *μέν*, and one (that of the facsimile) from *μὲν*. Of the two others, one is an abbreviation, properly so called, consisting only of a *μ* with a meaningless flourish. Other instances of abbreviation, as distinct from ligature, are the words *θεός* and *κύριος*, and their cases (*κυρίου* occurs in line 2); but apart from these, the ordinary twisted *ει*, the *στ*, the use of which is universal, one form of *καὶ* (line 18), and the above-mentioned *μεν*, are the only sorts that can be called abbreviated.

In spite of its bold squareness and its blackness, the type as printed in the Psalter is undoubtedly difficult to read. The ligatures have not much to do with this, but the main causes are two in number. The first is the extraordinary carelessness in the spacing out of words, as is well seen in the first line of the facsimile, where the words *σκότος* and *ἄγγελος* are widely and unevenly spaced; in line 2, on the contrary, the words are run together with very little spacing at all. To such an extent is this carried that we frequently find the last letter of one word and the first letter of the next printed with a single type; thus, in *ὕψηλό σσ ου*, the *σσ* is one type; similar instances are *ταρ ηματα*, *οὐ και τῶ*, and very often with prepositions, as *με ται τῶν*, *ἐ κν εότητος*, *ἐ κρ ὁμφαίας*, and *ἀ παυ τῶν*; more striking still is *ἐ.πο.υ.κέ.θν.ει* for *ἐπ' οὐκ ἔθνει*; *εἰ.σχέ.ι.ρ.ας* and *ἐ.ι.σχέ.ι.ρ.ας* are found within a few lines of one another. It must of course be understood that the stops in these last three examples are not in the original, but are inserted here to indicate the division of the letters. The other chief cause of the difficulty found in reading the type is the close resemblance of many of the letters to one another, and their unfamiliar form. Thus in line 6, the *η* in *ἦν* and the *κ* in the *κρ* of *ἔκρυπεν* are almost identical in form; the same is true of the *υ* as seen in *υν* of *ἐταπείνουν* in line 20, and a second form of *β*, which does not occur in plate V; and the *η* and *κ* do not differ from the *υ* and *β* except in the height of the first upright stroke. Many other letters, though free from this ambiguity, are of unusual form, and are apt to be troublesome until the eye grows accustomed to them; such are the *λ* in *ἄγγελος*, line 1; the *ά* in line 4, or the *ἐ* in line 5. Certain combinations also, like *ἐπὶ*, or *τερ* in line 9, *στᾶ* in line 11, or *σαν* in the last line but one, may be puzzling at first.

Florence
press of 1494.

Strictly speaking, this is the last example of the older types; but as the Florentine press of 1494 stands quite alone, and is, at least before the introduction of its lower-case type, quite independent of Aldine influences, though it owes little or nothing (except perhaps in certain technical details) to its predecessors, it seems best from all points of view to notice the Laskaris-Alopa press here, and to restrict the later group to those presses which used types of the character first introduced by Aldus.

Ioannes
Laskaris as
designer.

The Greek press in question was established in 1494 at Florence under the direction of Ioannes or Janus Laskaris, the printer employed by him being Lorenzo, son of Francesco di Alopa, a Venetian, who is known as early as 1483 as the workman employed by the Dominicans of San Giacomo di Ripoli to work their press. His Latin books are very few and intermittent, but he did not altogether stop their issue even while he was printing for Laskaris. Antonio, his brother, was also a printer from 1487 onwards, and the few books he is known to have produced independently of Buonaccorsi, with whom he was for some time associated, prove a very close connexion with Venice. Lorenzo, however, shows in his printing a strong touch of eccentricity and originality, and these qualities may have influenced Laskaris in fixing on him to carry out his plans. For his type Laskaris made a fresh start, and rejecting all systems based on writing, went back to the inscriptions, not indeed for the form of his letters, which are derived directly from the capitals of an ordinary roman type, but to justify his rejection of lower-case, and of the capitals of that beautiful but fantastic design used by his predecessors; and also for the spirit of the new venture, the spirit of a somewhat cold and lifeless classicalism, in sharp contrast with the mediaeval luxuriance of beauty which yet lingered in the types of his rivals and predecessors. His action and intention is thus described by himself in the dedicatory letter to Piero de' Medici, printed at the end of the Anthology of 1494. 'Nouam hanc et literarum studiosis perutilem imprimendi occasionem nactus, literarum graecarum elementa a deformi et indecenti admodum deprauatione uindicare constitui. Cumque animaduertentem earum notas, quae inpraesentia sunt in usu impressioni adhibitae, nec excudi commode, nec apte inuicem cohaerere posse, quod perplexae nimium et circumuolutae sunt, priscas literarum figuras iam diu obsoletas diligentius

inquisiui, atque huic imprimendi artificio per excusores atque id genus opifices accommodatas impressoribus tradidi.'

It is clear from this that the alphabets of large and small capitals, ^{Order of the books issued.} as they appear in the earlier books from this press, represent the whole of the type as Laskaris planned it, and that the lower-case was added afterwards because of the necessity of a smaller and more compact fount for the printing of scholia, when it was desired to add them to the text. We may thus safely conclude that the books printed in capitals only are the earliest. In all six or eight books came from this press, a larger output than that of any fifteenth-century Greek press except that of Aldus, and possibly of Bonus Accursius. The test of the presence or absence of lower-case type enables these to be separated into two groups; the first consists of one dated and two undated books, the Anthology, finished in August, 1494, four plays of Euripides, and the little volume entitled Γνώμαι μονόστιχοι. The later group contains the other books, which may themselves be subdivided by means of a second form of the ζ in the lower-case. This is not found in the undated Kallimachos, or in the Apollonios Rhodios dated 1496. These two books are also the only two which have text and scholia, the former printed in capitals, the latter in lower-case; but they differ in arrangement, as the scholia in the Kallimachos are placed at the end, those of the Apollonios are placed round the text, as may be seen in plate VI. The Lucian has the second ζ, and is a very much larger book than the rest; it is dated 1496 like the Apollonios, and is printed in lower-case throughout. Two other books exist, as to which it is difficult to be certain, because, as I shall have occasion to point out farther on, this Florentine fount was revived at Rome in 1517 by Kallierges without any change whatever, and there is nothing to show definitely to which period they belong. One of these books is an edition (wholly in Greek, without the Latin version) of the Erotemata of Chrusoloras; the other is the Πλαξ of Kebes. Both are without any indication of their origin, and without titlepage; and these facts are in favour of the earlier date. Laskaris seems to have followed the French king to Paris at the end of 1496; but these small books may well have been set up after his departure, and in either case would not have taken long to print. They agree in every respect except size with the Lucian.

Though the zeta is a distinct line of division between the Apollonios and the Lucian, the difference in time must be very small, as both are dated the same year, and the great bulk of the Lucian made it no matter of a month or two. We may assume without much rashness that the Γνωμοι and Euripides occupied the end of 1494 and part of 1495; the Kallimachos was then printed, and the greater part of the Apollonios (a book of peculiar difficulty from its arrangement) was set up in the same year; this was finished early in 1496, and the greater part of that year is thus left free for the Lucian.

The type;
capitals. Its
construction.

The type of these books, as originally planned, consists, as has been said, of one alphabet of large, and one of small capitals. Each alphabet is a combination of Greek and roman letters, and contains the twenty-four Greek letters, with a second form of Π, and the nine roman letters (C D F G L Q R S V) which have no analogy with any of the Greek. In addition to this, the small capitals have an iota adscript, half the height of the other letters, as may be seen in line 3 of the text on plate VI. The Latin letters are not used anywhere except in the Anthology of 1494. Besides the letters, there is a set of eight accents and breathings, consisting of two rectangular breathings, the three accents, a rounded apostrophe, a diaeresis, and a diaeresis with an acute accent. The technical interest of the fount consists in the device for adjustment of letter and accent, practically a variation of that used for the Vicenza Chrusoloras to be described in the next chapter, but rather simpler, although owing to its smaller size it may have been more difficult to work cleanly. The body of the type is somewhat larger than two-line brevier: the large capitals are cast on this body, the small capitals on a smaller body, and the accents on one which represents the exact difference between the two. The accents were placed above the small capitals, being adjusted in their proper places by means of special quadrats, with which the rest of the line was filled up; and when accent and breathing were both required for a single letter they were placed side by side. The large capitals were intended to be without accents; but after the first three books, at the same time as the introduction of the lower-case, they begin to make their appearance with accents attached. The change is obviously due to the appearance of the first Aldine books, and the method adopted was no doubt the same in both cases; that

is, the letter was slightly filed, and the accent was fastened on by means of solder or wax. Only one or two of these accented capitals were used in the Kallimachos, but they are plentiful in the Apollonios. The simultaneous introduction of such capitals and the lower-case type, both due to Aldine influence, in the Kallimachos, helps to fix its date as 1495, some time after the appearance of the Laskaris of Aldus in March of that year.

This new departure of Laskaris resulted in a type legible enough, but soon tiring to the eye, and after the first feeling of novelty has worn off, dull and uninteresting; it must on the whole be pronounced unsuccessful, and this not merely on aesthetic grounds; for the introduction of the fount of lower-case only a year after the completion of the first book in the new style is in itself a confession of failure, the fount in question being precisely one of those 'perplexae nimium et circumuolutae,' which Laskaris condemned and aimed at superseding, only far more so than any type existing in 1494. Clearly it was found impossible to print prose in capitals without intolerable ugliness, such as is only too apparent in the dedicatory letter of the Anthology, and to print commentary in capitals without an inordinate waste of space.

The new lower-case is obviously inspired by the example of Aldus, as being founded on contemporary handwriting, but it differs from the Aldine type so completely in all its details, that the Florentine designer borrowed nothing from the Venetian beyond this one hint for his choice of a model. Abbreviated and involved as it is, it is one of the best of its kind, being less wiry than any Venetian fount, even that of Kallierges, though lacking his distinction. It is moreover comparatively simple; there are few examples of more than one sort for each simple letter, and the number of abbreviations is by no means large; hence the number of sorts is not as large as might be expected. The body, being two-line brevier, is slightly smaller than that of the capitals; in plate VI the lines do not range as nearly as would be the case if the text were set quite straight upon the page. Opposite plate VI, which is a page from the Apollonios, is given an analysis of the sorts found in that book; it is, I hope, fairly complete, though most certainly not exhaustive. Certain sorts are found in the Lucian, which do not occur in the Apollonios; the second form of ζ, spoken of above, is one of these.

Details of
the lower-
case.

There is nothing to show that the accents were separately worked, and the kerning of the lines of type, which is a striking feature, is entirely against this view. We may perhaps attribute the small number of abbreviations to a desire to simplify as far as possible the cases, already larger than those of a type constructed on the Aldine plan, in consequence of the accents being cast on the letters. The way in which the lines are kerned is often very curious, and recalls the type of Kallierges; in line 2 of plate VI, for instance, the words τοῦ ὕδατος run up into the line above; in line 15 the ὕ at the end of the line is worked into the tail of the ν in line 14, and the τοῦ below ρ in line 26 is very similar. The other kind of kerning, by which letters adjoining each other in the same line are made to overlap, is more prominent in this type than in any other except that of 1476, and in some ways surpasses even that. The high Ϛ and ϛ as in lines 1, 2 of the facsimile, and the high τ (line 2), are hollowed out on the right and left sides respectively; a notable instance of this is in line 26, where a Ϛ and a τ meet over an α. In a rather different way the λ and χ are sloped so that the following letter overhangs them slightly, as may be seen in λι, line 1, or λει, λκ, line 4. The χ is not so striking, and is not always kerned (as in χρ, line 1, or χου, line 3); but χέ, also in line 3, shows the practice, and there are other examples lower down the page: it is never so prominent as in λ, as may be seen by comparing λύ (line 24), λέ (25), λα (26) with χι in line 17, or χε in 25. In the case of οῖ and οῖ̃ it is quite doubtful whether they are a single sort, or two letters brought close by filing or a kern. The iota subscript is found, exactly as in 1476, with six letters only; α ᾱ, η ῆ, φ ῥ; but ῥ̣ occurs in the Lucian. In all other cases a very small adscript iota is added, as it is in the capitals; thus Ηῖ is found for Ῥ, Ηῖ for Ῥ, ὠῖ for ὠ̣; the iota is not more than half the height of the letter to which it is joined. The abbreviations are to a large extent true abbreviations, and not mere ligatures: a large proportion of them are the cases of the definite article (τῆν, line 1, τοῦ, line 2, τοῖς, line 5); but Ϛᾱρ and καὶ occur on the page reproduced, as well as several ligatures, ἀλλ, υῖ, εσ, ευ, and many others, and some which may be called either, such as εἰ, ου, τρ, σπ, and so on. It will be noticed that two kinds of ò are found, in ὑπό, lines 9 and 22; in the latter case the ò seems to be ọ̀ with the breathing cut out.

With this type, which is in reality transitional, our survey of Greek

printing before Aldus ends; but it seems best, before going on to the more difficult and less interesting task of describing the Hellenic types of the new school, to pass in brief review the books produced during the earlier period by Italian printers without the concurrence of Greek scholars, comprising what has been called above the Graeco-Latin class: the more so, as the issue of these books, like those which we have been considering, ceased abruptly, with one exception, before the rise of the Aldine Press, and in consequence they attach themselves rather to the earlier than to the later Hellenic group, not only in respect of date, but in the character of their types as a whole.

V.

First of the books of the Graeco-Latin group, and seemingly the first Greek text ever printed, is an edition of the *Batrachomachia*, of which the only known copy is described by Dibdin (*Bib. Spencer.* ii. p. 53, no. 254), and is now in the John Rylands Library. It contains the Greek text, with an interlinear Latin prose translation, which occupy the right-hand page of each opening, and the metrical version by Carlo Marsuppini on the left-hand page. The printing is extraordinarily bad, and the copy has been so much written over to make it more legible, that the facsimile in plate VII, though taken from the least defaced page, must not be trusted too much in detail. The roman type is two-line brevier, and it is identical with that of Thomas Ferrandus, an early but little known printer at Brescia, of whose work very few signed examples exist. The l with a stroke through it (used for *vel*, or *lia* in *alias*), of remarkable form, agrees with that in the *Statuta Brixiae* of 1473; the contraction for *us*, of a shape much used by the Parma printers, is not used in the *Statuta*, but is found in the undated *Phalaris* at the Bodleian; but the peculiarity of the mixed e, some having a horizontal, some a diagonal stroke across, and the double form of the contraction for *que*, one of which seems too large for the type, I have not found elsewhere, and it may point to a somewhat later date. But the only fixed date for Ferrandus is 1473, in which year the *Statuta Brixiae* were printed; so that there is good ground for considering the *Batrachomachia* to be earlier even than the *Chrusoloras* next described. The Greek type

of the book, also two-line brevier, is a very close copy of that of Jenson. It is, like its original, a type of the cutting-out class, é being formed from ě, ó from ō, á from ě, and so on. The high τ, the final ς above the line instead of below it, the two forms of π, are all distinct evidences of the source whence the type is derived.

The Vicenza
Chrusoloras.

Next in order of date, and in many respects the most interesting and remarkable of these books, is an edition of the *Erotemata* of Chrusoloras without imprint or date. It is printed in Greek and Latin in parallel columns. The Greek type used is noteworthy in more than one way. It is the first attempt to reproduce in type the current Greek hand of the day, with its sloping letters and somewhat careless freedom: but the result is clumsy and ill-looking, and the work is clearly that of a type-founder who, whatever his skill and experience in turning out Latin types may have been, had little or none in the forms or problems of a Greek alphabet. Some of the letters seem to show traces of an effort to fit them together, as was done in the Laskaris of 1476; for instance, in the τ and ω in line 1 of the facsimile on plate VIII, κ and α in line 2, τ and η, ς and ι in line 3; but there is no reason to suppose that the resemblance is anything but a coincidence, for in all other respects the two types stand as far apart as they well can. In certain cases, especially with letters before ς, as η or υ, the file may have been used to make the join closer; but there seems to be no sign of kerning for this purpose. The mechanical device adopted for the make-up of the type is very remarkable, and has no analogy among early types except the fount designed by Ioannes Laskaris for Lorenzo di Alope at Florence, and the Paris type of 1507; in these the resemblance is only partial. The three longest letters of the type, the ζ, ξ and ψ, and no others, are cast on a double pica body; in all the rest the letters occupy a space slightly larger than the body of an english fount, the short letters being cast near the top of this shorter body, while the low letters, such as ρ or χ, take up almost the whole of the face. The accents and breathings are cast separately on a minion body, which represents the exact difference between the height of the ξ and that of the moderately tall letters, such as π or θ. In the Florence type the capitals are in the position of the ζ, ξ, and ψ here, as the accents fill the exact difference between their height and that of the small capitals; but the absence of low letters made the problem simpler,

as it was not necessary to cast the other letters in an unusual position on the face of the type. The Paris type of 1507, again, is much less ingenious, as there the accents have an independent line to themselves between each line of text. In our present type the low letters are very prominent, and *âs* may be seen in lines 15, 16 of the facsimile, are clear, but only just clear of the accents in the line below. In the case of the accented *ψ* (line 6), it is necessary to assume the dovetailing of the accent into the letter by means of a file, or some similar instrument. We must suppose that the non-accented letters were filled up with minion quadrats; but the process of adjusting these and the accents in their proper positions must have been a wearisome one. The number of variations in the individual letters is small. The second *ε'* and *ο* are very rarely found; the former only once (leaf 2^a, line 3); the *ο* is introduced from the Latin fount. The secondary forms of *ι* and *χ* (lines 6, 11) are intended to fit closely to a preceding or following letter respectively. Of tied letters there are twelve, for the most part insignificant; among the accents the *˘* is the most worthy of attention.

Where and when was the book printed? It is clear from the character of the Latin type, that it is of a comparatively early date; not later, that is, than 1480 or thereabouts. But both questions might be difficult to answer, if by a fortunate accident two pieces of evidence were not forthcoming to determine them within narrow limits. The roman type, though I have not met it elsewhere, agrees generally with a class of types used in certain towns of North Italy, especially Bologna, Vicenza and Treviso, though it is more irregular than other types of its class. In the Chrusoloras it is heavily leaded, being a type of english body. Of the Greek type we find the *δ* (line 4 of plate VIII) and *σπ* (line 2) appearing as strays in the Greek type used at Vicenza by Dionysius Bertochus in 1483 (plate X), and the *ει* (line 1) occurs in the same type when used by the same printer or his partner at Venice in the following year (plate XI). Bertochus, a native of Bologna, was throughout his long and chequered career emphatically a Philhellene, as he established two distinct Greek presses, the first at Vicenza in 1483, which he removed to Venice in 1484, the second at Reggio d'Emilia in 1497, which was moved to Modena in 1499, and back again to Reggio in 1500 or 1501. He was continually on the move; we find him at Bologna from 1474

to 1476; during the years 1477 to 1480 he disappears for a time; he reappears at Vicenza in 1481, moves to Treviso in 1482, is back in Vicenza in 1483, and settles in Venice in 1484. We may then assume that there is prima-facie evidence in favour of Vicenza as the place of origin of the Chrusoloras, as it is there that the stray letters turn up in 1483. Fortunately, however, more is known of the type than this. In 1481 Bertochus was in partnership with the printer Giovanni da Reno, who in 1475 had moved into Vicenza from Santorso, a village some ten miles to the north. The earliest dated book of his, printed at Vicenza, that I have seen, is the commentary of Omnibonus Leonicensus on Cicero, *De Oratore*, which has no printer's name, but a colophon giving the place of imprint and the date 11 kal. Ian. (22 Dec.) 1476. This book actually contains a considerable number of Greek words printed in the type of the Chrusoloras. The roman type of the book is english, with a pica face, so that, with the exception of the three tall letters, our Greek fount matches it well, with very little trimming, when used, as it is here, without its accents and breathings. The result of the short letters being cast at the top of the body is clearly seen, the level of the Greek words being decidedly higher than that of the Latin text. Of the three tall letters, ε does not appear to be used: the other two have been filed to make them fit in, without however curtailing the face of the letter; but the ψ, even when it comes under a short letter, such as an α, pushes it up out of its place in the line above. The ζ is managed better, and has produced no observable dislocation.

But from the occurrence of the Chrusoloras type in the Omnibonus of 1476, it seems certain that the fount, in which the accent-system is an integral part of its design, was not made for that book, to which some of the letters have had to be forcibly adjusted; it is necessary therefore to conclude that in all probability our Chrusoloras is earlier than December, 1476. But if so, it has a good claim to contest with the *Batrachomomachia* of Ferrandus the honour of being the first Greek book ever printed. The *Laskaris*, of course, which is dated 30 Jan. 1476, whether this means 1477 or not, will retain its pride of place as the first book wholly in Greek, and stands on a different level as being genuinely Hellenic in its design and in all of its actual production except the mere press-work; but the Chrusoloras is nevertheless a Greek text, and is printed with remarkable care and accuracy

in view of the difficulties involved; it is of great interest, as being almost certainly the work of Italian craftsmen, whether Giovanni da Reno or another were the printer, and on account of the ingenuity with which the new problems involved were faced and solved. Though the solution may not be wholly satisfactory, the designer succeeded in providing in a fount of less than sixty lower-case sorts for every possible combination. The book is interesting, moreover, for the character of its type, which, rough, straggling and over-sloped as it is, is unique as a deliberate attempt, forestalling Aldus Manutius by nearly twenty years, to reproduce for the purposes of the press not the bold and graceful forms of the calligrapher, but the ordinary familiar penmanship of the time; and for the curiously-linked chain which leads from the Chrusoloras, which is without any mark of origin, through the Omnibonus, in which place and date are given, but the name of the printer must be inferred from the type in which it is printed, to the partnership of the same printer with Bertochus in 1481, and the appearance of stray letters of the type in books printed by Bertochus in 1483 and 1484.

The next Italian printer who produced a Greek book was one The Parma Chrusoloras. at Parma, who has not yet been identified. He printed several Latin books from the beginning of 1480 to the end of 1481, among them being editions of Nonius Marcellus, Festus, and Varro, in which Greek type is used. The Greek book, which is another edition of the Erotemata of Chrusoloras, printed like the earlier one in parallel columns of Greek and Latin text, is without any indication of its origin or date; but both roman and Greek types are identical with those of the Nonius. But as a considerable number of blank spaces in the Nonius and its companion volumes point to a deficiency of Greek letters at that time, the Chrusoloras may be assigned to the next year, 1481. The Latin type is easily recognisable by certain peculiarities, some of which it shares with other early Parmese founts, while some are found in this type alone. Such are the contractions for *us* and *rum*, the *e* with a cedilla of unusual form, used for *ae*, though *æ* is also common; the *l* with a stroke through it, and the wide *h*. The Greek (plate IX) must be derived from that of Wendelin of Speier or Jenson, as is shown by the double form of π and other distinctive marks, and rather from the first than the second; but though boldly designed, and not without merit, it is somewhat rough

and uneven, and does not keep very close to its original. It is a two-line brevier fount of the cutting-out class (the τ of lines 1, 6, for instance, is made out of the τ of line 8 or 11), and of simple construction, without any kerns or similar devices except the occasional undercutting of the high τ . There are no capitals or iota subscript; the accented vowels are very incomplete and rather carelessly used; for instance $\acute{\alpha}$ is almost always printed $\acute{\alpha}$ or $\acute{\alpha}$, the accent not having been erased, and so with the other rough breathings. The stops (period, colon, hyphen and question) are supplied from the roman type. There are only four tied letters, $\pi\pi$, $\sigma\sigma$, $\sigma\sigma$, $\sigma\sigma$, and very few instances of more than one variety of the same letter; except π and τ , which are always found, the only one seems to be ω , one variety of which, wide and standing rather on one side, is a feature by which this type can be easily identified. Both kinds of π and ω are seen in the word $\pi\epsilon\rho\iota\sigma\tau\omega\mu\acute{\epsilon}\nu\omega\nu$ in line 2 of plate IX; the last ω is the one to which I refer, but it is not usually tipt up so much as in this instance. The ς final goes below the line, while the σ rises above it, just the reverse of what is the case in Jenson's type; the absence of any v except the pointed form, which is as usual rather clumsy, and more like a roman v , may also be noticed; other features of the type are enumerated in the analysis of the type opposite the facsimile.

Dionysius
Bertochus
at Vicenza
and Venice.

The first Italian printer who printed Greek books with types of the Graeco-Latin class, and set his name to them, was Dionysius Bertochus, of whom something has already been said (p. 85). He is first met with as the associate of Ugo Rugerius in 1474. He led a wandering life among the towns of Northern Italy, but seems not to have been his own master till 1483, when his Greek books printed at Vicenza appeared. In the next year he renewed a former partnership with a fellow-townsmen, Peregrino Pasquale, and moved his press to Venice. Here too the first book produced by the firm was Greek, and though it has the name of Pasquale only, it is in the type of the Vicenza books of the previous year. After this no more Greek printing was done by Bertochus till 1497; this later press of his will be spoken of in its place.

At Vicenza in 1483 his work consisted of reprints of two books first issued some four or five years before by Bonus Accursius, and the Venice book is a third edition of the *Erotemata* of Chrusoloras,

so that he did not (either then or later) break new ground. The first of the two Vicenza books has neither imprint nor date; it is a reprint of the Latin-Greek vocabulary by Crastonus, which was one of the first books in which Bonus Accursius used his second type. In the second place Bertochus reproduced the Lexicon of Crastonus, the first book with which Bonus Accursius was connected. It has a full colophon, and is dated November 10, 1483. In this edition the preface of Crastonus was omitted, but that of Bonus Accursius was allowed to remain. It was probably fifteen months later, the date being February 5, 1484, that the Chrusoloras appeared at Venice. The same type is used for both languages as in the Vicenza books, but the composition and press-work are inferior. Though Pasquale was no novice, we might have supposed that the omission of the name of Bertochus from the colophon represented an actual absence, did we not know from his books of 1497 how badly, in spite of all his experience, he could print when he chose.

The type used for the Greek text of these books is a mixture of His type. at least two founts with a differently-sized face. Of the larger letters, many if not all appear to be identical with those of the Tortellius printed at Treviso by Hermann Lichtenstein in 1477, in many copies of which the name of Michele Manzolo or Manzolino is substituted for that of Lichtenstein; the smaller letters are in part at least those of the type used by the same Manzolo after his removal to Venice in 1480. In the Vicenza books a large number of the letters are found of both sizes; some are of the smaller, and others of the larger only. Many of the duplicate forms are used in the Lexicon only, and do not appear in the Vocabulary. Besides this mixture, which pervades the whole fount, several letters from the type of the early Chrusoloras appear in these books, though they are entirely out of keeping with the rest. These letters are δ , ϵ , λ , and σ . Of these four only σ occurs in the Vocabulary, while the Venice book is the only one of the three in which λ and ϵ are used. The ordinary ligatures of the type, which are very few, are common to all the books alike, except ou and ou , which appear only at Venice. This very composite fount is of english body, with certain of its accents kernered, as may be seen in lines 18, 19, and 29, 30 of the page reproduced from the Lexicon (plate X), and lines 23, 24 of the page from the Venice book (plate XI). Its approximate extent

may be seen in the analysis, although many of the lesser variations are difficult to distinguish. It has a set of capitals, K, Y, and Ψ being absent; K is replaced by the roman K, Y by an A reversed, with the cross-stroke cut out, or by a roman Y, and Ψ by its corresponding lower-case letter. Returning to the mixture of types, some instances of the presence or absence of certain letters may be given. Of the consonants, the short, rectangular ρ occurs in the Lexicon only; in this also a third form of δ is once found, as well as the smaller ζ and the larger κ; both forms of the last are shown on plate X. Certain vowels also, including ι, are used in that book only. The variations of ε are instructive. In the Vocabulary the only ε is a tall letter occupying the whole depth of the face; in the Dictionary, after being used at the beginning of the book, it was found inconveniently large, and was replaced by a shorter letter, which in the rest of the Lexicon and in the Chrusoloras is used to the exclusion of the larger form. Of the two sizes of letters, a good many, for instance μ, π, υ, ω, may be easily distinguished in plate X. Some letters, such as θ, occur in the smaller size only, though the great mass of the type belongs to the larger-faced fount. The tall τ, rarely used, is not undercut. In places where a kerned letter abuts on a letter with a long tail in the line above, especially the χ, the file seems to have been used. At Venice a roman v and c are sometimes found for υ and ϙ; this, which does not happen at Vicenza, is a sign of inferior workmanship. There is also an i from a gothic type, in which the dot is replaced by a stroke; this is used both at Vicenza and Venice as l, and also (only at Venice) for i in the Latin text. Similarly a gothic ī (i. e. *in*) is found in place of ι. Lastly, certain letters, such as â and ð, are of a different form at Venice from those used at Vicenza.

Leonardus
Achates at
Vicenza.

Besides Bertochus, the only printer of Latin books in this period who ventured on printing Greek, was one Leonhard, of Basel, who latinised his surname as Achates. He began at Padova in 1473, but moved to Vicenza in the next year, and remained there till 1497, though there are long intervals (1482 to 1489, 1491 to 1497) during which nothing is known of him. His four Greek books just fill up the time between these two gaps, though they do not represent half his total output during those years. The first book was issued in June 1489, and is a reprint of the Milanese Greek and Latin

Laskaris of 1480, the Latin version being by Crastonus. The type <sup>His type :
first state.</sup> in which it is printed has the same origin, and is an obvious imitation of the second Milanese fount, in which the earlier bilingual Laskaris was set up. It is two-line brevier in body, a fairly careful copy and certainly the best type of its class. The analysis shows the extent of the type; there are few ligatures, but a tolerably complete set of accented sorts, and a large number of variations in individual letters. The capitals are not complete; the Φ, X and Ψ are wanting, and the N (in 1489; it was supplied in 1490) is that of the roman type; the Λ is simply an A with the cross-stroke cut out. The type is not much kerned, but the existence of something of the sort is shown in certain places, where an exceptionally tall letter, like δ, comes below a low letter or a capital; there is an instance with ρ and ó in lines 10 and 11 of Plate XII. On the same page there are many instances of a letter with a stroke over it. That these strokes do not form part of the letter as cast can be seen from the fact that they differ every time the same letter recurs (as β in lines 8, 13, 19, 24, or τ and σ, each twice in line 15), and also because, when attached to a high letter like τ, ψ, in line 14, or ς in 24, they are clearly outside the body of the letter, and encroach on the preceding line. The difficulty of attaching small pieces of lead to the letters as required will account both for the diversity of form, and also for the way in which some of the strokes, such as those above the α in line 21, or the β in 24, are bent. Following its model in this also, the Vicenza type has the iota subscript. The high ς and τ are very common; the former is undercut (ςκ, line 1; ςμ, line 13), but not the τ; in one place an i of the roman type is found under the ς, a sufficient proof, if any were needed, that these undercut letters and the short ones which are joined to them are always separate sorts.

Plate XII is not from the Erotemata of Laskaris, but from another work by the same writer, entitled *Περὶ ὀνόματος καὶ ῥήματος βιβλίον τρίτον*, there printed for the first time. It is often found bound up with the Erotemata, and may be supposed to have been printed shortly after the larger work, towards the end of 1489. In the epilogue, dated from Messina in 1466, Laskaris surveys the field of Greek grammar and lexicography, and gives some account of his own writings. As this is almost the only Greek document of any interest in these books which has not been reprinted by M. Legrand

in his Bibliothèque Hellénique, I have given a transcript of it in an appendix.

Second state
of the type.

After the appearance of the Erotemata, Achates discarded in his Greek books the two-line brevier roman used for that work, and replaced it by a smaller fount of a body not much larger than pica, which had been in his possession since 1482. It is not certain whether this was the cause or the effect of the alterations he proceeded to make in his Greek type; but probably it was the cause, since the body of the Greek was made the same as that of the previously existing roman type. The result of this recasting was, as might be expected, lamentable. The old punches were used for the most part, but various changes had to be made in order to compress the face of the type to fit the smaller body. An elaborate system of kerning disposed of most of the high and low letters, but unfortunately there were now so many kerns that it was not always possible for the compositor to prevent them from coming against each other in succeeding lines. The χ of line 1 and the $\pi\acute{\upsilon}$ of line 2 on Plate XIII show what the natural result of this was, the two kerns being left to fight it out between themselves. A new θ (line 12) was adopted, and the smaller ζ , which even in the second book by Laskaris had largely replaced the taller one (only the short one occurs in Plate XII), is now the only one used; the σ is usually found with its tail chopped off; new forms of ω take the place of the old; the iota subscript is dropt; the upper part of Δ is cut off and used for A; a roman v is found for ν besides the original form of the letter, and the tall γ is almost entirely discarded.

The effect of these changes is so astoundingly bad that one can only wonder how any printer, even if, for the sake of cheapness, he wished to save space, could have consented so to ruin a really fine type. Two books were printed with the recast fount, both editions of the Erotemata of Chrusoloras; one of them is dated Sept. 1, 1490, the other Dec. 23, 1491. Both are badly printed; the surface of the forme was uneven, and did not take the ink or meet the paper properly; and for the same reason a single small impression caused so much injury to the face of the letters, that in the second edition the type looks like one which had been printed from for years. The facsimile given in Plate XIII from the edition of 1490 shows some of the marvellous shifts to which the compositor was reduced.

Besides the instance already noted, the second γ in $\gamma\epsilon\rho\alpha\phi\alpha$, line 4, had to be curtailed on account of the δ below. The different ways in which $\lambda\lambda$ is treated are a curious study; in line 8 the second λ is docked, in line 20 the first; in 27 the first is pushed up, and in 30 the two seem to be run together. In lines 8 and 9 the $\epsilon\iota$ has pushed the ι below it out of place; similarly in line 23 the δ has displaced μ in the line above. In line 12 the lower part of the T is entirely broken off, while in 18 it is bent.

VI.

With Aldus Manutius a fresh period in the history of printing opens. Concerning this celebrated man so much has been written that it is unnecessary to do more here than to refer those who wish for an account of his life and work to the volumes of Renouard and Didot. For the business enterprise and eager scholarship of Aldus no praise could be too high; the ingenuity and resource displayed by him as a printer and the general excellence of his press-work are beyond question; but the new founts of his invention, whether Greek, roman or italic, are in each case lamentably devoid of beauty of form other than that conferred on them by good cutting, and his overwhelming influence among his contemporaries and successors secured the ultimate disappearance of the older and purer models. The list of the Greek books printed by Aldus up to 1500 will be found on pages 50, 51; I add here for comparison an abstract, taken from the facsimile published in 1892 by M. Henri Omont, of the price list of such as were then published, which Aldus issued in October, 1498; a document of great interest, only known from a single copy at Paris. It will then be necessary to discuss certain questions relating to the order in which the earliest of the Aldine classics were issued, before describing the founts used for those books, their peculiarities, and their difference from those which preceded them.

'Libri graeci impressi. Haec sunt graecorum uoluminum nomina, quae in Thermis Aldi Romani Venetiis impressa sunt ad hunc usque diem, scilicet primum octobris, M.III. (A) In grammatica. (1) Erotemata Constantini Lascaris . . . Venduntur marcellis quattuor. (2) Grammatica Urbani . . . Venduntur non minoris marcellis quattuor.

Abstract of
the price list
issued by
Aldus in
1498.

(3) Canonismata quae thesaurus et cornucopiae appellantur . . . Venduntur minimo, nummo aureo et semis. (4) Grammatica . . . Theodori Gazae . . . Veneunt aureo nummo, nec minoris. (5) Dictionarium graecum . . . Minimum pretium est aureus nummus. (B) In poetica. (6) Theocriti eclogae triginta . . . Venduntur non minus marcellis octo. (7) Aristophanis . . . comoediae nouem . . . Minimum pretium Venetiis, aurei nummi duo et semis. (8) Musaei . . . de Herone et Leandro amantibus, cum interpretatione latina. Venditur marcello. (C) In logica. (9) Logica Aristotelis . . . Venduntur aureo et semis. (D) In philosophia. (10) Primum uolumen. Vita Aristotelis . . . Aristotelis physicorum libri octo . . . Venduntur ad minimum nummis aureis duobus. (11) Secundum uolumen. De historia animalium libri octo . . . Minimum pretium Venetiis nummi aurei duo et semis. (12) Tertium uolumen. Theophrasti de historia plantarum libri decem . . . Minimum pretium nummi aurei tres. (13) Quartum uolumen. Aristotelis magnorum moralium ad Nicomachum libri duo . . . Minimum pretium nummi aurei duo. (E) In sacra scriptura. (14) Psalterium graecum. Venditur marcellis quattuor. (15) Officium in honorem beatissimae uirginis . . . Venditur marcellis duobus.

Order of the
first Aldines.

There is some difficulty in determining the order in which the first books of Aldus were issued. Mr R. C. Christie, in an admirable paper contributed to the first volume of *Bibliographica*, has proved beyond question that, as regards the dated books, the solution is to be found in the hypothesis that Aldus at first used the Venetian method of dating from March 1, but soon abandoned it for the modern style in which the year begins on the first of January. Mr Christie showed that the time of his change in this practice dates from the beginning of 1497, at the time of the issue of the second and third volumes of the Aristotelian series, and that the Venetian method of dating is used in all books before this time, and in no books after it, with the doubtful exception of the Grammar of Urbanus Bolzanus, dated January 1497. Thus it is possible to be reasonably certain as to the order in which the great majority of early Aldines appeared.

But the position of the three undated books, the *Mousaios*, *Galeomuomachia*, and *Psalter*, still remains undetermined. These were once considered to be the first productions of Aldus, and to have preceded all the dated books; this position has been usually

abandoned as regards the Psalter, but is universally held of the Mousaios and Galeomuomachia. The early date attributed to the Psalter. The Psalter rests on the phrase used by Ioustinos Dekaduos in his preface: ἔδοξέ μοι τὴν θεόπνευστον βίβλον τῶν θείων πρῶτον ἐντυπῶσαι ψαλμῶν . . . ὥσπερ τινὰ πρόδρομον καὶ κήρυκα διαπρύσιον τῶν μετ' οὐ πολὺ τυπωθησομένων ἡμῖν θείων προεκπέμψαι γραφῶν. It is clear that this only refers to the priority of the Psalter to the rest of the Bible; Dekaduos has just been speaking of a projected edition in three languages, and it is of this that the Psalter is described as a precursor. All that is definitely known of the date of the Psalter is, that it is earlier than October 1498, as it appears in the first price list.

The date assigned to the Galeomuomachia rests on similar evidence. Galeomuomachia. Didot (Alde Manuce, p. 57) quotes from the preface of Aristoboulos Apostolios, as follows: 'il crut devoir le publier comme un héraut, κήρυκα, précurseur des œuvres de la Grèce qui vont être imprimées.' This of course if true would be the strongest evidence in favour of its priority; but unfortunately Apostolios says nothing of the kind. These are his words: οἷόν τινα κήρυκα προεκπέμψαι τῆς [οὐ] μετ' οὐ πολὺ τυπωθησομένης Ἰωνίας. The Ionia was a collection of apophthegms compiled by the writer's father, Michael Apostolios; and there is no ground whatever for Didot's paraphrase in general terms. The Galeomuomachia does not appear in the catalogue of 1498, and was probably intended for private circulation.

Then we come to the Mousaios, which has a preface by Aldus Mousaios. himself. The statement of Aldus is perfectly clear and precise: Μουσαῖον τὸν παλαιότατον ποιητὴν ἠθέλησα προοιμιάζειν τῷ τε Ἀριστοτέλει καὶ τῶν σοφῶν τοῖς ἑτέροις αὐτίκα δι' ἐμοῦ ἐντυπωσομένοις. The Mousaios is thus earlier, but not much earlier, than the first volume of the Greek philosophic collections which were published between 1495 and 1498. This first volume appeared on November 1, 1495; and all that Aldus' own statement permits us to say is that the Mousaios must be before that date, while his words infer that the Aristotle, at the time the preface to the Mousaios was written, was within a measurable distance of completion. There is no internal evidence whatever for assuming any one of these three books to be earlier than the Laskaris of 1494/5.

But any one who has handled the Mousaios must have noticed the curious make-up of the book. The Greek text is accompanied

by a Latin translation on alternate leaves. The first leaf has a title on the recto, and on the verso notes of omissions in the Greek text. The second leaf, signed α, contains the preface, and two epigrams by Mousouros. The third leaf is signed b; it contains on the recto a translation of the epigram facing it, and on the verso the beginning of the Latin text, corresponding with the beginning of the original which is on the recto of leaf 4, signed α u. Leaf 5 (Latin) is signed c, leaf 6 (Greek) α u; leaf 7, b iiii, leaf 8 α u; leaf 9, v, leaf 10, α u; leaves 11 and 12 from the middle of the book, and are both Latin, the inner pages being occupied by two woodcuts, and an epigram in Greek and Latin; leaf 11 is signed b vi. Thus the book, if taken to pieces, falls into two sections entirely independent of each other; the Greek text, a quire of ten leaves signed α; the Latin version, twelve leaves, signed b. How do these two parts stand towards each other typographically? The Greek text is printed all in one type, which is identical with that used for the Galeomumachia, the text of the Psalter, the Gaza, Theokritos and the Aristotle. But three things in the types used for the Latin portion are noteworthy. In the first place, the roman shows decided signs of wear, and is the same that first appears (in a dated book), in a perfectly new condition, as a few lines on the titlepage of the Theokritos of February 1495/6. Secondly, the only Greek type used in the Latin part is the smaller fount which is found first in the Thesaurus of August 1496. This also is by no means new. Thirdly, a paragraph mark is used which I have found nowhere else earlier than the Grammar of Bolzanus dated January 1497. That Aldus did actually not possess the smaller Greek fount at an earlier date than August 1496 can I think be proved. It is used in the last four volumes of the Aristotle series, beginning with January 1497, but not in the first. The Latin preface to the Gaza (Christmas, 1495) is printed in small roman type. In this preface two Greek words occur, πάθῃ and μέσα. The first word in most copies is printed in ordinary Venetian Graeco-Latin letters, while the second is actually left blank to be filled in by hand. In other copies there are blanks for both words. The preface to the Dictionary, printed just two years later, also has Greek phrases, but here they are set up in the smaller Aldine type.

For these reasons I am convinced that the Latin part of the

Mousaios cannot be earlier than 1497, and is probably not before 1498; in the Psalter, though it has no roman type, large use is made of the smaller Greek fount, and it may therefore also be assigned to 1497 at earliest. Like the Psalter, the Mousaios figures in the list of October 1498 in its completed form; its position at the end of the section in which it stands may or may not indicate its recent completion, as the books are not placed in strict chronological order. So too the position of the Psalter before the Greek Hours of December 1497 cannot be relied on as evidence of its priority.

There remain then the Galeomuomachia, and the Greek text of Mousaios, which are very similar in many respects. There is a slight difference in the way the signatures are printed; in the Galeomuomachia the iota adscript of the capitals is used for the numbers, in the Mousaios the lower-case iota. The paper is similar, though the watermark differs. The page is much longer in the Galeomuomachia, having twenty-three or twenty-four lines to the twenty of the Mousaios. Both however consist of a quire of ten leaves, and begin on the recto of the first leaf, without a titlepage, as indeed was natural with such small pieces; the absence of a titlepage cannot then be taken as an argument in favour of an early date. Typographically there is little or nothing to choose between them; the type is in much the same condition in both books. We may therefore assume without much risk that both were produced at nearly the same time. The Mousaios is, as we have seen, earlier than the Organon of November 1495; what is its relation to the Laskaris of February and March in the same year?

With regard to the Laskaris, two points have to be noticed. The first is that the Greek type of the Laskaris, while identical in design and some other respects with that used in all the other books, has peculiarities of its own. The body is shorter, being little larger than great primer, while that of the other books is nearly as large as double pica; it is also wider, so that there is a greater amount of white between the letters; it has a number of letters found nowhere else, and does not contain a number of ligatures and abbreviations used by Aldus in all his other books. But the Mousaios and Galeomuomachia do not agree in this respect with the Laskaris, but with the Organon and the rest. Secondly, the preface of Aldus seems conclusive. 'Constantini Lascaris (he writes)

Laskaris,
Feb.-March,
1495.

uiri doctissimi institutiones grammaticas introducendis in literas graecas adulescentulis quam utilissimas, quoddam quasi praeludium esse summis nostris laboribus et impendiis, tantoque apparatus ad imprimenda graeca uolumina omnis generis, fecit cum multitudo eorum qui graecis erudiri literis concupiscunt (nullae enim exstabant impressae uenales, et petebantur a nobis frequenter), tum status et condicio horum temporum, et bella ingentia quae nunc totam Italiam infestant.' Again at the end of the preface he says: 'rudibus et ignaris peritus literarum graecarum Lascaris institutiones imprimendas curauimus; mox eruditis et doctis optimi quique graecorum libri imprimentur.' It would require strong evidence to upset the claims of the Laskaris, backed by the evidence of Aldus himself, and of the type, to be the first of the Aldine series.

There is however a difficulty, which is not affected by the presence or absence of two small pieces like the Mousaios and Galeomuomachia. How can it have been possible to recast the type, and to print a book of the size of the Organon, between the March and November of the year 1495? We may suppose if we like that the letters used for the Laskaris had been already tried and rejected for the larger work as unsuitable, and that Aldus used them here to avoid the entire waste of the fount before putting the metal back into the melting-pot; but there is no grain of evidence for this. As things stand, the time required seems quite incredibly insufficient for all that had to be done.

First type of
Aldus.

Something must now be said of this Greek type of Aldus, so praised both by himself and his contemporaries, and even by modern writers who were still in the thralldom of the Bodoni and Didot period. In the preface to the Aldine Psalter, Dekaduos speaks of it thus: Ἄλδος τοῦπικλὴν Μανούτιος . . . ἀρετῆς ζήλω καὶ τῇ πρὸς τὰ ἡμέτερα κηδεμονίᾳ τε καὶ στοργῇ τὴν τῶν γραμμάτων τούτων εὐαρμοσίαν καὶ σύνθεσιν τῇ τοῦ οἰκείου νοὸς ἐφεῦρεν δεύτητι· ἐὼ γὰρ λέγειν τὸν χαρακτῆρα, οὐπὲρ οὐκ αὐτὶς τῶν ἐπὶ τὸ καλλιγραφεῖν χειρισόφων ἐνεχάραξεν ὠραιότερον. This passage gives the clue to the success of the Aldine Greek type. Aldus broke away from the usage of his predecessors, and produced a type based not upon the noble and beautiful older book-hand, but on the ordinary correspondence or business handwriting of his day, involved and contracted to an extreme degree, but, as writing, not without merit for its freedom and flowing lines; and for that very reason eminently

unsuited for fixing in the rigid uniformity of type. To avoid this as far as possible, variants without end of the same letter or contraction were made, and new combinations, each more extravagant and contorted than the last, were incessantly added. The Gaza of December 1495 is an example of the extreme point to which the use of contractions was carried; in that book long words like ἐνεστώς, παρατατικός, παρακειμένος, μέλλων, ἀόριστος are represented by a single intricate and unmeaning convolution. So κεφάλαιον elsewhere, even in the smaller types. The developments of these exaggerations may be well studied in the alphabets of the French Royal types, of which some account will be given in the last chapter. The result of this tendency was a partial remedy of the first trouble at the expense of the compositor, whose cases threatened to assume a bulk and complexity likely to make his work physically impossible except with immense labour. Thus it was necessary to endeavour to reduce the number of sorts, both for the compositor's sake, and also doubtless on account of the expense of cutting so many punches, without diminishing the number of possible combinations, on which the success of the fount depended. For this end certain modifications of the usual methods of kerning were invented, and it is probably to this that the expression in his application of 25 February 1495 to the Signoria for privilege partly refers. The date of application corresponds exactly with that of the publication of the Laskaris, and is shown by the colophons to the Aristotle of 1495, the Gaza and the Theokritos, which mention the privilege, not to be reckoned, as Baschet and Didot assumed, more Veneto, i. e. 25 February 1496, according to our reckoning. In this document, Aldus, who in the preface to his volume called Thesaurus, issued in August 1497, states that he had been engaged for more than six years (*annus enim agitur iam septimus*) in perfecting a system of printing in Greek, applies for a copyright in his Greek characters for ten years on the ground that 'havendo facto intagliar lettere greche in summa bellezza de ogni sorte in questa terra, ne le qual habbia consumato gran parte della sua faculta cum speranza de doverne qualche volta conseguir utilita, et za molti anni chel ha consumadi nel intaglio de le dicte lettere, habia trovato, per la dio gratia, doi novi modi, cum i qual stampira si ben, e molto meglio in grecho de quello che se scrive a penna.' Here, besides the comparison with writing again insisted on, mention is made of 'two new methods' invented

His two new methods.

by Aldus in connexion with his experiments in type-founding. One we may feel fairly confident is the adoption of the new style of face in place of that based on older models; the other is probably the contrivance by which the types were cast in such a way as to enable the compositor to unite a letter with a breathing, accent, mark of abbreviation or contraction, into a whole which should have the appearance, as printed, of a single letter. Existing founts of a somewhat later date show what the method of Aldus was. The practices, already known to printers, of kerning one line of type into another, of interlocking letters in the same line, and of working the accents separately by placing them in a trough above their letters, led up to the invention of Aldus, which was only a combination or development of these as regards the lower-case. But the process was not completed at the time his first book was issued. On sig. 18^b of the Laskaris of February 1495, in the last line but one, a space has worked up, as is common in all printed books, and stands level with the face of the type, so that it has been printed. A space must of course represent the size of the type-body, if it stands straight and is unbroken, as is this space. In an ordinary fount it reaches from a point level with the head of a high letter to one level with the tail of a low one, e.g. from dot to tail of a j, or roughly speaking, halfway between a line of type and the lines immediately above and below it. The space in the Laskaris, however, reaches from the foot of the short letters in one line to the same place in the line above; it is therefore clear that this first attempt of Aldus differs from all other types in the position of the letter on the body of the type. In view of the preponderance in Greek of the high strokes, and to give as much room as possible for the insertion of the kerned sorts, Aldus had the short letters cast at the foot of the face, in the lowest possible position; he shortened the low strokes as much as possible, and kerned them on to the line below, while developing the high strokes greatly; and he also provided in this way a very long shoulder to support the projecting parts of the accents and the numerous contractions. But the plan was a failure; it was at best a makeshift, an intermediate step in the full development of the new method, and was probably condemned not less by the discovery of a way to overcome the difficulties of combining the separate working of the accents with a type cast on the ordinary plan,

than on its own demerits. The fact that the privilege was applied for at a time when the Laskaris was practically completed, and after Aldus must have determined to abandon that fount, and to recast it on a slightly different system, seems to prove that his second invention, if indeed it is to this point that he refers, must be the plan (of separate accents attached by kerns) taken as a whole, and not only that stage of growth marked by the Laskaris type.

The extent of this first type of Aldus in its earliest form is shown to some degree by Aldus himself. In the 'Alphabetum Graecum cum multis literis' printed at the end of the Laskaris, Aldus has given examples of all the varieties of simple letters which his type at that time contained. Of the capitals there are two forms of Ξ, Π, and Ω, but of no others. In the lower-case, of ν there are seven varieties, of α, φ, ω, five; of β, τ, four; of ς, ε, η, θ, λ, ξ, υ, three, and of δ, ζ, ι, κ, μ, ο, π, ρ, σ, Ϸ, ψ, two. Thus the twenty-five letters (counting σ and Ϸ) are increased to seventy-five, and this irrespective of all accents, breathings, &c. A little further on Aldus gives what is even more interesting to us, a list, on two pages, of the principal contractions used, both alone and in position, upon a word of which they form part. The second of these pages is reproduced on plate XIV, and I need not further refer to it; the first contains contractions for αν (two), άν, ας, άς, 'ας [i.e. ας with an acute accent on the preceding syllable], αις, αις, εις, εν, εν, εις, ης, ης, υν (two), ην, ιν (two), εις, εις (two), ον (two), 'ον, ων, twenty-five in all. The abbreviations, which were of course cast with a thin shank, were probably supported on spaces when printed by themselves, as on this page. The facsimile, together with the page from the Mousaios which is shown on the next plate, will give some notion of the complexity of the first Aldine fount and its wealth of ligatures and contractions.

The fount as finally completed is shown in the page from the Mousaios reproduced on plate XV. Kerning between the lines is almost wholly abandoned, though still used to a very small extent, as in the οθα of line 11, and a space which is found on sig. λ 1^b of the Psalter proves that the type was now cast in the usual position. In preference to a longer discussion of the peculiarities of the Aldine types in general, I have thought it best to point out in the case of each fount separately the problems it presents, and how far these support or conflict with the conclusions here arrived at as to the

The first
type in the
Laskaris,

and in its
final form.

methods followed by Aldus and his fellow-craftsmen. In this way it happens that less detailed notice is taken of the first type than of the latter ones, because its larger size makes the amount of it which it is possible to reproduce here very small; and the greatest attention is bestowed on the 1498 type (which is not Aldine at all, but a careful imitation), because this has been chosen for extended analysis on account of its smaller volume. In plate XV the accented capitals first call for notice. I have already spoken in the fourth chapter, while treating of the press of Lorenzo di Alopa, of the way in which the accents were fastened to the capitals in later types on the Aldine model, and therefore presumably in the Aldine types themselves. In the lower-case, while the majority of the accents and other marks are clearly cast separately from their letters, there are a few which appear to be solid. Such are the $\rho\acute{o}$ in line 3 and line 10, while $\rho\acute{o}$ in line 7 has its accent separate. The contraction for $\tau\acute{\omega}\nu$ in line 4 is almost certainly cast in one piece; and the $\tau\phi$ in the same line, and in line 5, has the circumflex placed suspiciously low down. Again, it seems that on no other hypothesis can the presence be explained of sorts with a horizontal line above them, which seems quite out of place, and cannot have been intentionally added. See ρ_1 , line 4, ι in $\text{Οὐδῖ}\phi$, line 7, $\omicron$ and ϵ in line 10. There is probably a considerable number of different accents used, but they are difficult to distinguish, as such sorts must have been specially liable to get bent (hence difference of slope) or broken, with consequent difference in length. The variant forms of the same letter can be best discovered by the help of the analysis facing plate XV, and I need not dwell on them here. The number of separate abbreviations is fairly large for the size of the page, but the only one that is at all elaborate is the $\epsilon\lambda\nu\alpha$ in line 5, where the α , with preceding circumflex, stands above two letters, $\epsilon\iota$ and ν , and has made it necessary to place the breathing in front of the word, instead of over the $\epsilon\iota$. The use of the iota subscript is common, though not universal ($\text{Οὐδῖ}\phi$ in line 7); it seems impossible to determine whether, as in the French founts of 1544, the iota was attached by kerns, or was cast in one piece with the vowel; but the latter alternative seems the more probable.

Character of
the type.

But what is to be said of this much-vaunted type of Aldus? I fear that its resemblance to the writing to which they were accustomed,

which endeared it to his contemporaries, does not appeal with equal force to us to-day, nor can we any longer see with the eyes of a Bodonist, to whom everything beautiful was 'barbarous' and only the misshapen and ugly were admirable. In truth, in spite of all his estimable qualities, Aldus seems to have been a man of phenomenally bad taste for his time, and unfortunately the blunders which in a lesser man would have been unnoticed, the enormous influence of the books which he produced perpetuated and sanctioned. It was in vain for Doukas and Ximenez to produce at Alcala, as a striking antithesis to the prevailing tendency, the most splendid Greek type ever designed, at a time when the work of Aldus had reached its fullest development; or for the Venetian printers of the Greek service-books to persevere in keeping up the older and better traditions; the stream was too strong, the great professional printers, such as Froben, Estienne, and their contemporaries, caught up the prevailing fashion and the cause of Greek printing was lost, as that of Latin was soon to be. To us, whether from the point of view of beauty or usefulness, the first type of Aldus has no redeeming feature. It is not even a good specimen of its own class, as may be soon proved by comparing it with the lower-case Florentine type of the Apollonios of Rhodes, or that of Kallierges, in which grace and regularity help to atone for their deficiencies in other respects; that of Aldus, on the contrary, is not only illegible, but is slipshod and ragged to the last degree.

This double pica Greek, recast from that used in the Laſkaris, Second type of Aldus. was the only Greek fount possessed by Aldus till 1496, and it continued in use to some extent till 1498, the Aristophanes of that year being the last book in which it is found. The second type first appears in a few words of Greek in the Latin preface of Aldus to the Thesaurus of August 1496. It is between two-line brevier and great primer in body, but the face is disproportionately small. Practically a reduced copy of the larger type, it shows a firmer and more practised hand, and avoids many of the extravagances of the earlier type, while still full of minute variations and elaborate contractions. Its character can be seen from the page reproduced on plate XVI, from the 'Επιστολαί διαφόρων of 1499. I have chosen a page which partly corresponds with that taken from the Phalaris of Bissolus and Mangius issued the previous year (plate XIX), for purposes of comparison;

it is evident that the other type is a copy of that of Aldus. This Phalaris type in its first state, i.e. as used at Venice, I have chosen as an example for analysis, to discover if possible the approximate number of sorts contained in a type of this later class, because of the small bulk of the only two books in which it is found. To read through all the books printed by Aldus in any one of his types would have been an impossible task. But the close relation between the two founts makes it unnecessary to dwell on this second Aldine type further than to call attention to its greater simplicity, especially in the smaller number of detached contractions, as compared either with its predecessor or with the Phalaris type.

There can be no doubt that in this type, as in the larger one, the accents are added to the letters by means of kerns; we continually find letters clearly the same, differing only in the accent over them. Instances of this on the page reproduced in plate XVI are numerous; in $\mu\eta$, lines 4 and 5, the slope of the accent over the η differs; in $\delta\epsilon\iota$, lines 2 and 10, the accent is rounded in the one, curly in the other, but the letter is identical in both; compare also $\acute{\alpha}\lambda\lambda$ with $\acute{\alpha}\lambda\lambda$ in lines 19, 20. About the $\mu\acute{\epsilon}\nu$ in line 3, and those in 18, 20, it is hard to be sure whether the accents are different or identical. The ϵ in line 4 is a different letter from that in line 5, but that in line 17 seems to be the same as that of 5 with a lower breathing. The δ in lines 3 and 4 is the same letter with differently sloped accents; on the other hand, in $\delta\omega$, lines 1 and 6, both letters and accents differ. In the $\acute{\epsilon}$ of $\acute{\alpha}\nu\alpha\beta\alpha\lambda\acute{\epsilon}\sigma\theta\alpha\iota$, line 4, and of $\pi\epsilon\rho\iota\mu\acute{\epsilon}\nu\omega\mu\epsilon\nu$, line 5, the letter is different, but the accent, which is eccentric both in shape and position, appears to be the same. The υ in $\tau\omicron\upsilon\varsigma$, line 6, seems odd; it is possible that the kern has not been fitted on to its letter properly. Attention may be called to the four kinds of $\acute{\omicron}$ noticed on this page. The $\acute{\omicron}$ of $\mu\acute{\omicron}\nu\omicron\nu$, line 1, and of $\acute{\alpha}\nu\delta\rho\acute{\omicron}\varsigma$, line 10, seems to be the same letter, and the same is the case with $\pi\rho\acute{\omicron}\phi\alpha\varsigma\iota\varsigma$, line 9, and $\kappa\acute{\omicron}\sigma\mu\omicron\nu$, line 15; but the accents are different, though those of $\mu\acute{\omicron}\nu\omicron\nu$ and $\pi\rho\acute{\omicron}\phi\alpha\varsigma\iota\varsigma$ may be identical. The $\omicron$ -forms are, as usual, arranged so that the accents stand above both letters, as in $\omicron\iota$, line 2, $\omicron\iota$, line 5, $\omicron\iota$, line 8.

Third type
of Aldus.

The third and last of the fifteenth-century Greek types of Aldus is used for the Scholia to the Alexipharmaka of Nikandros, annexed to the Dioskorides of July 1499, which is the last of the Greek books

of Aldus printed in the fifteenth century. This forms an independent section of the work, and seems to have been added later, as an afterthought; it is not mentioned on the titlepage, and is wanting in a large number of copies. But as the type used for it is that in which the Philostratos of March 1501 was set up, it is certainly to be reckoned among the fifteenth-century types. It is a pica fount of very flowing character, with a large number of ligatures, but fewer contractions than in the larger founts, because the smallness of the type made the kerned sorts very difficult to handle. As a specimen of the art of type-founding it is a marvel of skill and ingenuity, and considering its small size, very legible, owing to the fineness and uniformity of the lines, and the care with which it is printed. The capitals are however very unsatisfactory, being both too small and out of character; they appear to be largely identical with those used in the early books (Vergil, Martial) printed in the italic type of Aldus. In the portion of this type reproduced on plate XVII, two spaces which have worked up can be seen; the first, in line 7, shows the full body of the type in the original, but the facsimile fails to indicate more than a small part of it; the other, in line 21, is shorter, and as it is evidently standing properly on its feet, it may be a space of which the shoulder has been accidentally broken off. But Dr P. Schwenke has lately observed spaces of similar form in the forty-two-line Bible; and he thinks, no doubt rightly, that these are the spaces belonging to that part of the fount which was modified by cutting away the shoulder, in order that the letters might stand under the high f. It is possible, then, that we have in this space an example of one adapted for holding up a kern, like those in plate XIV, referred to above; though, if this were so, one would expect it to be somewhat shorter than it actually is.

The analysis of this type clearly shows a marked difference from the larger founts in the number of varieties of single letters; it is however accidental that there are exceptionally few contractions in the piece chosen for reproduction. In smaller variations the minuteness of the face makes it difficult to distinguish them without a photographic enlargement of the type, and there are probably far more than those noted in the analysis. A number of those which are recorded there differ from each other only in the shape or position of the accents; it seems incredible that any separate method of working these could

have been adopted here, from the difficulty of manipulation, and the later Greek founts of similar sizes were certainly made without kerns; still, the phenomena agree with those observed in the larger types of this class. Compare for instance the $\dot{\iota}$ in $\omicron\delta\epsilon\dot{\iota}$ (line 15) with those in $\rho\omicron\dot{\iota}\varsigma$, lines 25, 26. The first two seem to have the same ι , and the same accent, differently placed; in the second and third the accent is in the same position, but the form of the letter differs. In line 29 the μ in $\text{Εκ}\mu$ and in $\epsilon\iota\ \kappa\mu$ is the same letter, but the accent is different. So also is the υ of $\rho\omicron\upsilon$ in line 10, and of $\alpha\upsilon\rho\omicron\upsilon$ in line 11. The $\omicron$ -forms show the usual peculiarities; for instance the $\dot{\iota}$ in $\omicron\delta\epsilon\dot{\iota}$, line 15, and in $\omega\omicron\dot{\iota}\varsigma$, line 25, is identical, except that in the second the $\omicron$ is partly under the accent, while in $\omicron\delta\epsilon\dot{\iota}$ the $\delta\epsilon$ is not. In all other cases where $\dot{\iota}$ comes after a ligature the other $\dot{\iota}$ is used, as $\rho\omicron\dot{\iota}\varsigma$ in lines 25, 26, 27; and this is a point against separate accents. In the same word $\omicron\delta\epsilon\dot{\iota}$ the breathing is between the $\omicron$ and the ι , while $\dot{\iota}$, as in line 1, differs. It is possible, if we can place the cutting of this type after October 1500, at which time the press of Kallierges and Blastos ceased working, and their privilege lapsed, that the present fount was made on their system of separate punches and combined matrices; this would help to explain the facts, but involves assumptions which have no direct evidence to support them.

Imitations of
Aldine types.

Bertochus at
Reggio and
Modena.

The Aldine press having thus been dealt with in detail, we have next to consider the imitations of its types which appeared during our period. Of the two printing firms which come under this head, the first is our old friend Dionysius Bertochus, who abandoned his ancient ways to follow the new fashion. After remaining at Venice, when he returned thither from Bologna in 1489, till 1494, he moved once more to Reggio d'Emilia, where in company, partly at least, with a fellow-townsmen, Marcantonio Bazalieri, he established in 1496 a new press for printing both in Greek and Latin. While at Venice, he had used (for instance in the Perottus, Cornu copiae, of 1494) an ordinary Venetian fount of the Graeco-Latin class; at Reggio he set himself to reprint line for line the books issued by the first Milanese press (as he had already done before, in 1483), with a fount copied from the first Aldine Greek type. Only two Greek books, so far as is known, were issued from his press at this time; one is a second reprint of the Latin-Greek vocabulary of Crastonus, which was one of the first books printed for Bonus Accursius in the

later type; the other is the third part of the same editor's Aesop, containing select fables with a word-for-word Latin translation. Both books are reprinted from the earlier editions without any attempt at revision, and are moreover very badly and carelessly done. They are both dated 1497, without any month or day being given, but from the state of the type it seems fairly certain that the Crastonus, in which the name of Bazalieri is joined with that of Bertochus in the colophon, is the earlier of the two.

Of the first quire in the Crastonus there are two different editions, ^{The two issues of the Vocabulary.} probably due to an accident with the formes. Both are equally incorrect, some mistakes being common to both, others appearing in one only. Some of the variations are interesting as proving beyond dispute that at least some of the accents were inserted above the letters during the actual composition. The edition I call A has signatures A ii, A iii to the third and fourth leaves, containing the beginning of the text (the first leaf is blank, and the second, which has no signature, is filled with the Latin preface); edition B has the signature A ii on the second leaf, and no signature on leaves 3 and 4. A few examples out of many of errors common to both A and B are ἀπόπταπος (3^a), although the second π differs in the two editions; ἀπόσμηξις (4^a), προσπλιρώ (5^a), μοικός, παράκλυτος (6^a), γαξοφυλάκιον (6^b); on 7^b γεωργία is printed γεωρνία in both, though with a different ν in the two editions. The word ἰσοδυναμέω is ἰσοδυναμέω in A, σοδυναμέω in B. Errors in A, correct in B, are: ἀποπέμπο for ἀποπέμπω, 3^a; προσκυλίω for προσκυλώ, and ἐπιρρηστικός, ἐπιρρηματικῶς, ἀτίκειμαι for ἀντίκειμαι, 6^a; ἐφάμνλλος for ἐφάμιλλος, 6^b; cum with m upside down, 8^a. Mistakes in B, correct in A, are equally numerous; such are ἀφαιρετικός for ἀφαιρετικός, 3^a; προσέρκομαι, 6^a; λευκωτής (no accent) for λευκότης, 8^a. In B the word δισχύω on 7^a has a roman i in place of the second iota. Of other differences not involving spelling, those in which the position of the accents differs (and these are very numerous) need alone detain us. On the first page of the text βαίτυλος has its accent higher up and further back in B; ἀπέρχομαι has the accent in front of the letter and tipped back in A; ἐλάτινος the same, more pronounced; ἀπελαστής in A has the accent beyond the letter, in B over the first limb of the eta; ἀποβάλλω in B is like ἐλάτινος in A. In oxytone words ending with a consonant the accent is frequently placed over, or even beyond the consonant in one edition, over the

vowel in the other; thus, leaf 8^a, περωτός, κυβευτικός, 7^b, ἄμνος, 6^b, οἰκοδομητής, have the accent wrong in A, and ἄγων on 7^b in B. But these last are of course not so decisive as medial accents; on 6^a, κάω has the accent on the ι in A, between α and ι in B, the diphthong being in both editions a single sort with ligature; on the same page, μοιχέα is exactly similar; on 5^b, the accent of εἰσποιέω is behind the ε in A, before it in B. It would be easy, but is needless, to multiply instances of this sort. It is quite clear that Bertochus copied the Aldine scheme for accents, but did not know how to cast the kerns properly, or how to compose them when cast. The spaces which stand too high and have been printed are numerous (there are two on leaf 5^a of the Crastonus, edition B); they stand rather low, so that an accent comes some distance up a space standing in the line above. Thus the second space on the page referred to stands over an ᾱ; the accent of the ᾱ rises in front of the space the greater part of a millimetre above its foot. The accents rise above the tailed letters, such as ρ, in exactly the same way. Some of the accents, however, are not independent of the body of the type in this way, for instance the υ in line 4, the ο in line 6, the ε in line 7, and the η, ἡ in line 8 of the facsimile, plate XVIII; compare these with the η, ο of line 3, the ω of line 5, or the υ, α of line 15; or compare ε of line 13 with ε in line 1; and it will be clear that the accents are of two sorts, separable and inseparable. Examples of the setting forward of the separable accent are found in the page of the Aesop reproduced in plate XVIII, in περὶ, line 1, ἐπειδὴ and κύειν, line 7, and αὐτός, line 11.

Type of
Bertochus.

The type, a rather large two-line brevier, in which the Crastonus and Aesop are printed is, as already mentioned, an imitation of the first Aldine type; it is however exceedingly rude and unskilful, and being a bad copy of a bad fount, is of unspeakable baseness. Most of the larger and all the most elaborate ligatures are not reproduced, and there seem to be none of the contractions which could be placed over or fixed to the preceding letter, except ov, and perhaps one or two more. On the other hand, kerning after the older fashion, both vertical and horizontal, is more used than in any of Aldus' books after the Laskaris. It is easy, in fact, to discern that the type-founder, if he were not Bertochus himself, was, like him, accustomed to the older Graeco-Roman founts; and, while he thought himself compelled to

follow the fashion in the form his type took, he was unable to carry out the new methods in their entirety, and has, so to speak, grafted the modern shape of the letters and the new way of accenting on habits and practices formed or learnt in an older school of printing.

In 1498 Bertochus moved once more, and took his press and types with him from Reggio to Modena. Established here in the basement of a house, he printed an edition of the Lexicon of Crastonus 'impressum in aedibus Dionysii Bertochi bononiensis subterraneis,' which was finished in October 1499. This was not his first book since his departure from Reggio, as an edition of the poems of Tibaldeo had been issued in May of the same year. The lexicon is a far more ambitious work than either of the Reggio books. It is much more accurately printed, and the press-work shows great improvement; it seems strange, indeed, that an experienced man like Bertochus, who had been a printer for a quarter of a century and had been associated as an expert with some of the best printers of his time, should have produced work so unworthy of him as the two books printed at Reggio. Their inferiority may have been due to difficulties experienced with the new and no doubt extremely perplexing way of printing the Greek, or to accidental and temporary circumstances of which we know nothing. The Lexicon, a folio of considerable size and bulk, was, as originally planned, a mere copy of the Milanese edition, or of Bertochus' own earlier reprint of 1483, and it is printed in the same types, both for Latin and Greek, as had been used at Reggio. In this form it was finished on 20 October 1499. Afterwards, however, there was added at the end a Latin index, adapted by one Ambrosius of Reggio from the similar index appended to the Aldine edition of 1497. In this index, besides the two earlier types, a new small roman fount is used for the text and preface. The preface is dated, 'Regii Lepidi tertio nonas Iulias. M.D.,' thus it was printed at least nine months after the Lexicon itself. Now Bertochus was still at Modena in May 1500, the date of his Martianus Capella; that book does not contain any of the smaller roman type; but this is found in an undated book printed by Bertochus, the poem of Demetrios Moschos entitled Τὸ καθ' Ἑλένην καὶ Ἀλέξανδρον, dedicated by Ponticus Virunius to Louis XII of France. The colophon is, 'Rhegii Lingobardiae presbyter Dionysius impressit.' In this little book three types are used; the small roman

Bertochus
goes to
Modena;

in question; a larger roman, different from that of the three Greek books just considered, and a small Greek type. What then is the date of this book, printed by Bertochus at Reggio? First we may notice that when the index to the Crastonus was printed, Bertochus possessed no small Greek fount, and was much hampered in consequence. Secondly, the use of a new larger roman type seems to indicate a later date than the Lexicon. Thus we may conclude that it is later than July 1500. Thirdly, the small Greek of the Moschos is actually the same as that used for the Souidas, printed at Milano in November 1499, under the superintendence of Chalkondulas by Bissolus and Mangius of Carpi. When we ask how this Milano type came into the hands of Bertochus, the answer is given by a book of which I copy the description from Panzer (viii. 243. 2): 'Erotemata Guarini cum Libanii opusculo de modo epistolarum, Graece. In fine: Impensis nobilis Simonis Bombasii et sociorum Pontici Virunii et Presbyteri Dionysii Bertochi, Benedictus Manzius impressit Regii Lingobardiae MDI. die X. Iulii.' From this we may be reasonably certain that the Moschos is not earlier than the beginning of 1501; and that at some time between May 1500 and July 1501 Bertochus returned from Modena to Reggio; but at which place the index to the Crastonus was printed there is nothing definite to show, though the circumstantial evidence from the preface and the use of the small roman type points to Reggio rather than Modena, and the shortness of the interval between May 15 and July 5 is, in view of the small distance between the two towns, not an argument of much weight on the other side.

and back
again to
Reggio.

Bissolus and
Mangius at
Venice, 1498.

The Greek fount just mentioned as being used for the Milano Souidas of 1499 made its first appearance a year earlier at Venice, in connexion with a press which seems to have been intended to become a rival to Aldus, if we may judge from the deliberate way in which he is ignored in the prefaces to the two books which alone appeared as the result of the efforts of the promoters. These books are both thin quartos, one containing the Life and Fables of Aesop, the other the letters of Phalaris, Apollonios, Brutus and Krates. The names of those composing the firm appear in both books, but more fully in the Aesop; they were Bartholomaeus Pelusius of Capodistria, Gabriel Braccius, or Braccio, of Brisighella, Ioannes Bissolus and Benedictus Mangius of Carpi. Of these the two last were the printers; the first two were editors. The Phalaris,

dated 18 June 1498, was the first of the two books to be published, and is dedicated to Pietro Contareno by Braccio in a Latin preface, which is amusing for the studied insult to Aldus contained in it. 'Cum omnium (he says) atque adeo cotidianis querelis rei literariae calamitas deploretur, quae librariorum impressorumque incuria indies diffunditur latius, incredibile dictu, nec minus foedum, nullos tam diu bonarum artium cultores exstitisse, qui sacratissimarum literarum numen uelut a profanis assererent, mysteriumque hoc, ut ita dicam, imprimendorum librorum si non studiorum antistites, at initiati uel cum sordium suspitione susciperent; hoc uero tempore non desunt, qui hoc uere publicum negotium priuato otio libentissime praeferant, hoc maxime freti, quod inuidorum impetus, quos non defuturos iam nunc satis perspectum est, te patrono facile sustinere posse confidunt.' He goes on to say that they intend to print a Latin version of the Letters, so arranged as to interleave with the Greek text (after the fashion of the Aldine Mousaios as finally completed), and to correspond line for line and page for page. The preface to the Aesop, which has no date beyond that of the year, is also by Braccio. He refers to the intention of himself and his companions to print both Greek and Latin authors, and to begin with the Greek, as the foundation of Latin literature: speaks of the Phalaris as printed, and goes on thus: 'Vitam Aesopi, fabulas, et epistulas Phalaridis noster Bartholomaeus Iustinopolitanus uertit in latinam ita ut uerbum de uerbo expresserit seorsum, alioque uolumine, id quod decentius et commodius uisum est, haberi uoluimus graeca a latinis, perpetuoque ordine et paginarum et uersuum sibi singula respondere.' It is noteworthy that in these two prefaces Braccio adopted the system of accenting Latin which is usually attributed to the initiative of Aldus two or three years later: his opinion may have been current before he ventured to carry it out in his printed books.

These two quartos, with an edition of Ficinus, de triplici uita, in Latin only, dated 1498, but without printer's name, represent the whole output of this ambitious undertaking; and there are many signs that some disaster overtook the firm. To begin with, the Latin versions of Phalaris and Aesop spoken of in the prefaces were never published; and the letters of Phalaris, though protected by a ten years' privilege, were reprinted with impunity by Aldus the very next year in his collection of the Greek letter-writers. Nor can it have

They leave
Venice
suddenly
and go to
Milano.

The Soudas
of 1499.

been long after June 1498 that Bissolus and Mangius, the two printers, left Venice and betook themselves to Milano, where they were employed by Chalkondulas on the great Soudas which was finished in November of the next year. Thus there was a dissolution of partnership, and a sudden flight of the printers, which involved, we must suppose, the withdrawal of the privilege granted to them; and the large differences between their type as used at the two places suggests, though this may be illusory, that they were forced to abandon their stock and could not carry away even the whole of their punches. What is certain is, that a large proportion of the letters are new in 1499; that a new, larger type appears first in the Soudas, and though used only on a single page, and so far as I know never found again, it was clearly a complete fount of similar size to the smaller one. The cause of the catastrophe was most probably some action by Aldus, intended to protect his copyright in the method of printing Greek invented by him, a copyright certainly infringed by Bissolus and Mangius; and the false assertion under which the privilege quoted below was obtained is likely to have made matters worse for them. The Soudas is an enormously voluminous book. It has 516 leaves, of which four have only so much Greek between them as would fill one ordinary leaf, so 513 may be taken as the number, that is 1,026 pages. Each page has 45 lines, and each line has about 45 to 55 letters, or single sorts; allowing for the blank spaces at the end of paragraphs, of which there are few, 45 may be taken as an average. Thus we have $(513 \times 2 =)$ 1,026 pages with an average of $(45 \times 45 =)$ 2,025 letters, or 2,077,650 letters in the book. To do all the punch-cutting and casting required, and to edit and print off a volume of this size in a time which cannot in any case exceed fifteen to sixteen months, was a marvellous feat, and justified those concerned in the production of the book in the laudatory dialogue reproduced on plate XX and the epigrams which they addressed to each other and to their readers. The persons in question were the printers, Bissolus and Mangius, whose device, representing two flowering branches on a black ground, with the motto 'Sudavit et alsit,' and the initials IB BM, is at the end of the book, and replaces the mark (apparently intended for a pine-cone) which had been used at Venice. Both devices are reproduced by Kristeller (Italienische Buchdruckerzeichen, 67, 68). The editor Chalkondulas, who had

been, as we have seen, professor of Greek at Milano since 1492, is associated with the printers in the colophon, and wrote a Greek preface which gives some interesting information about the printing of the book. Giovanni Maria Cataneo wrote the Latin preface, and Antonio Motta some epigrams inserted at the beginning; but as the writer of the poem addressed to Chalkondulas, printed after the colophon, names them as participators in the book, they probably had some more intimate connexion with it. In this poem there is a typographical curiosity which I have not seen elsewhere. Two words in different lines, *que* and *iam*, having been accidentally omitted, they were stamped in with types by hand on the margin, and the place for their insertion was indicated with a pen. The Latin preface of Cataneo mentions the changes made in the type, though no previous work of the printers is spoken of. After describing the hitherto unsatisfied desire of scholars for an edition of Soudas (which Aldus had previously intended to produce, as is shown by the incomplete document reproduced by Baschet, Aldo Manuzio, *Lettres et documents*, p. 3, apparently of the early part of 1499), he continues: 'tandem ad hanc provinciam reseruatus uir atticae facundiae princeps Demetrius Chalcondyles praeceptor noster non, ut ceteri, graecorum studiosis tantam felicitatem inuidit, sed ducem se constituens egregios huius artis et industrios artifices Ioannem Bisolum et Benedictum Mangium Carpenses accersiuit; per quos, typis in melius reformatis, additis etiam plerisque et magnae et admirandae gratiae, quippe qui in eo genere praestantissimi sint; et praeter conditionem et aetatem suam, plurimis multoties collatis exemplaribus emendandum, immo excolendum et renouandum Suidam aggreditur, tanto studio et diligentia usus, ut . . . in illo expoliendo auctorem ipsum superauerit.' The Greek preface of Chalkondulas begins thus: Τὸ παρὸν βιβλίον Σουίδα τετύπωται μὲν ὑπὸ Βενεδίκτου Μάγου καὶ Ἰωάννου Βισόλου τῶν καρπαίων· ὧν ὁ μὲν εὐφυὴς ὢν καὶ πείραν οὐκ ὀλίγην εσχηκῶς ἐν τῇ τῶν ἑλληνικῶν γραμμάτων εὐαρμόστῳ συνθέσει, σπουδῇ τε καὶ προθυμίᾳ χρησάμενου, οὐδὲν παρήκεν ἐς δύναμιν τῶν εἰς ὀρθὴν σύνταξιν καὶ συμμετρίαν τῶν πρὸς ἄλληλα στοιχείων καὶ συλλαβῶν συντεινόντων· εἰ μὴ πού τι ἐν τοσοῦτῳ συντάγματι παρεώραται. Ἰωάννης δὲ ἄριστος ὢν γραμματογλύφος, καὶ τὰ κάλλιστα τῶν γραμμάτων καθ' ὅσον οἶόν τε ἦν εἰς ἄκρον ἐκμιμησάμενος τοιοῦτον χαρακτῆρα γραμμάτων ἀποτελέσας ἔχει, οἷόν ἐστιν ὄραν ἐν τῷ βιβλίῳ. This is especially interesting as showing 'the parts

of the work for which Bissolus and Mangius were respectively responsible; when the Milano venture failed like that at Venice, though not we may suppose from the same cause, Mangius, the designer and cutter of the types, retained possession of part of them, for we have seen that he took at any rate one of the types with him to Bertochus at Reggio in 1500 or 1501. But the same type is used in many books issued by Alessandro Minuziano at Milano, from the Priscian of October 1503 to the Stephanus Niger of 1517: either then Mangius returned from Reggio before the earlier of these dates, or he took away with him only a portion of the Souidas fount.

The type of
Bissolus and
Mangius;
first state.

Of this type it is now time to speak. On the seventh of March 1498, Braccio and his companions applied for a privilege of ten years (mentioned already in connexion with their Phalaris) for four Greek works, Phalaris, Poludeukes, Philostratos and Aesop (Fulin, Documenti per servire alla storia della tipografia veneziana, p. 51), of which two only were issued. This privilege was of course rendered null and void by the dissolution of the firm; so that Aldus was able to print Phalaris in 1499, Poludeukes in 1502, and Philostratos in 1501-4. The point to be noticed here is that Braccio supported his application by describing the type as 'una nuova invenzione,' or 'bellissima e nuova invenzione.' In spite of this, however, and notwithstanding the praises lavished on Mangius by Cataneo and Chalkondulas, this so much vaunted type is a very close imitation of the second Aldine fount, with all its peculiarities reproduced; the face is slightly larger (though the body is .25 mm. smaller, and therefore almost exactly that of two-line brevier), and the cutting is perhaps of more even excellence. It differs also in minor points, such as the iota subscript, which is omitted in this type, the use of the σ of σὺνθεσις, line 10 of plate XIX, accents on capitals, and the different proportion of ligatures and contractions. Since this fount in its original state, i.e. as used at Venice, is only found in two books of comparatively small compass, I have chosen it for analysis, in spite of its being a copy, in preference to one of the Aldine types, or that of Kallierges; these are far too extensively used for it to be possible to examine them throughout with the care necessary for any useful result. As it is, the list of sorts which I have given below is without doubt deplorably imperfect, but may serve to indicate in some degree the extent of a fount of this class.

I have already spoken so much of the Aldine method of adding the accents, that I should have been glad to pass it over here; but as soon as one wants, instead of giving merely a list of the varieties occurring on a single page, to tabulate the sorts in a whole fount, a more careful scrutiny is necessary, and a few of its results may be worth setting down. Several indications help to prove the identity of the practice followed by Bissolus and Mangius with that of Aldus. For instance, the rectangular form of breathing is used only with the capitals; but in one place in the Aesop it is found over a lower-case *e*. That the accents were originally separate in the capitals is clear from their seldom being twice in the same position: they are sometimes worked into the body, either at the side of the letter or on the top of it, and sometimes placed independently after it. The plan by which the accents are attached is doubtless that followed in later times, but first found in the Aldine types and that of Lorenzo di Alopa. The shoulder of the capitals having been more or less worked down with the file, the accents were bent on to it, and fastened by solder or some similar substance. As each letter had to be done separately in this way, their diversity is easily accounted for. The *ρ* in line 4 of plate XIX, which comes under a low letter, if compared with the same sort in lines 8 and 16, will be seen to have an accent differently placed on account of its position. A curious feature is the *ι*, for the two sorts in lines 2 and 5 have the acute accent placed rather behind them, and seem to be so always (lines 13, 23, &c.); a third sort, in line 8, is different, and so also is the *ι* (line 22). A large proportion of the contractions are worked in this way, or in some similar fashion, although, being always at the end of words, they could be kerned with greater ease. But it is, I believe, a fact, and it seems to point to a certain want of skill or experience in arranging the kerning of the various sorts, that most of the accented sorts in all the Aldine founts have on one side or the other, usually on that side to which the accent is nearest, a certain amount of space, almost sufficient for the thin shank which carried the accent; so that it is possible that the letters adapted for the accents were not made to overhang quite enough when being cast.

But it is not at all certain that all the accents without exception are worked separately. On the page of the Phalaris (plate XIX) some sorts seem clearly to be made in one piece; *ρ* in lines 1 and 5, *κα*

at the end of line 3, ἔστι and τῆς in line 4; and it may be so with all forms with a low round circumflex, like τῶ, line 25, or τοῦ in line 22, and with certain low or exceptionally sloping graves like τὸ in line 5 or καὶ in line 7. But we cannot be certain which sorts are and which are not separate; and this doubt, perhaps resolvable only by a resuscitation of the printer's office in working order, goes far to make impossible any list of sorts even reasonably or approximately accurate and exhaustive.

In the attempted list of sorts given below I have therefore made this assumption; that the accents, breathings, &c. are as a rule to be reckoned separately, with certain exceptions, the number of which is doubtful, owing to the uncertainty as to the line, if any there be, which divides them from the separately worked sorts. As to the accents themselves, it is I fear impossible to distinguish them with sufficient clearness. They print very differently in different places; look for instance at the four grave accents side by side in line 2 of the Phalaris page; they may well be the same, but as printed their thickness differs considerably. Nor need difference of slope (such as that of the μέν and ἀνδρῶν in line 1) always be decisive; it may arise from the shifting of the accent in the forme, or from the bending of the head on the shank; and the ῥά in line 4, already referred to, seems to show that such a thing was possible.

Second state.

The alterations which this type underwent for the printing of the Soudas were very numerous. It is of course difficult to estimate the number of new sorts, owing to the minute differences between some of them; but I found from the comparison of a few lines, that the average proportion of new to old sorts in the Soudas was roughly as 2 to 5. The changes may be shortly summarised as follows: (i) Duplication of existing sorts, or new letters to replace old (a) single letters, as μ, υ; (b) double, as γὰρ, καὶ, πα, τα, το; a completely new set of χ and δ compounds. (ii) Fresh combinations, whether (a) double, as αρ, ἐς, κο, λο, ει, τυ; (b) extension of three letter compounds, such as γρα, δυν, ἐλλ, ἐπι, κῶν, πα, σπο, τρι, ὑπο; (c) larger compounds much contracted, after the fashion of the first Aldine type; the most striking is the sign for ἀντὶ τοῦ. This and most of the preceding are shown in the few lines reproduced on plate XX (b). (iii) A largely increased use of the separate contractions fixed on to other letters or raised above the line.

The large type of the Souidas, a paragon, is used only on the first page, so that plate XX (a) gives all of it that has been hitherto discovered. But it is obviously part of a fount no less complete than the smaller one, and its disuse must be due to accident. It is so exclusively a larger version of the smaller type, that no further description of it is needed.

Larger type
of the
Souidas.

We have now reached the last, and in many respects the most eminent of the Greek printers in the fifteenth century. Zacharias Kallierges was a native of Rhethumnos or Retimo in Krete. His work falls into three very distinct periods; with the first of these alone we are nearly concerned, but a short sketch of the two later may not be out of place. Further details, including some of his letters, may be found in the long notice of him by Didot in his *Alde Manuce*. His great period, which lasted only two years, 1499 and 1500, was due to the enterprise and good taste of his fellow-countryman Nikolaos Blastos, who was at that time a stationer, but had formerly in 1484 been a copyist (Legrand, p. cxxviii). Then Blastos seems to have died, and we hear no more of Kallierges for nearly nine years. The fact that the books for sale in the Aldine catalogue of 1502 include these of Kallierges and Blastos proves nothing as to Kallierges, since they were no doubt the exclusive property of Blastos, and the stock may have been bought up, like that of Bissolus and Mangius, when he died. Nor does it prove, as some writers have thought, that Aldus did not regard the Kallierges press of 1499-1500 as a serious rival; here, as in the other case, fortune favoured him in the unequal struggle with men of greater resources, and if not better scholars, at least more careful workers, and of more cultivated taste. At any rate, when Kallierges reappeared he was still at Venice. In 1509 he issued two small thin octavos in a fount based upon that which he used in the fifteenth century, but smaller and inferior; and he followed these by a *Horologion*, intended (like the *Psalter* of 1486) to be the first of a liturgical series; he states in his very interesting preface that it was to be followed by the *Parakletike*, *Menaia*, *Triodion*, and *Pentekostarion* (Legrand, *Bibl. Hell.* p. 97). But these never appeared; and the three books just mentioned are all that remain to us of the second venture of Kallierges; they are of a very different appearance from those produced under the direction of Blastos, being the work of

Zacharias
Kallierges
and Nikolaos
Blastos.

a man who was an able craftsman, but without resources to undertake great tasks: this, and the horrors of the French wars, with the losses and humiliations which it brought to Venice, were the reasons why the promised liturgical series remained still unprinted, and we hear no more of Kallierges for six years. The type with which the books of 1509 were printed passed into the hands of Filippo Giunta at Florence (it is used for the Theokritos published by him in 1515), and Kallierges made his third attempt at Rome with a type closely resembling it, but a different fount. Here, under the protection of Leo X, he met with more success, and printed a considerable number of books, from the Pindar of August 1515 to the Lexicon of May 1523. In December of that same year Kallierges finished the writing of the New College manuscript of Stobaios, and another manuscript was written by him without date, ἐν γήραος οὐδῶ ἐν Ῥώμῃ (Legrand, p. cxxx); but beyond this nothing more is known of him. The most interesting point to us about his Roman press is that in 1517, or possibly earlier (it is used for the scholia on the Iliad published in or after September 1517), he acquired and printed with the Florentine Alopa type, both large and small capitals and lower-case being used exactly as they were twenty-one years earlier. It may well be that the Kebes and Chrusoloras in this type are to be referred to this later date rather than to the earlier.

Their press
of 1499-1500.

But it is time to cut short this digression, and return to the consideration of the four books of 1499-1500. Two points about these compel attention at the first glance; the first is the rapidity with which they were produced, the second is their striking beauty. As regards the time taken in printing them, the four volumes, all in folio, were issued within sixteen months, and they may thus be compared with the Souidas of 1499, the content being not very different in amount, as the four together have 542 leaves to the 516 of the Souidas. Thus the astonishing speed at which those responsible for them worked puts to shame the much-vaunted 'feverish activity' of the Aldine workshop, but it has almost escaped notice, probably on account of the greater modesty or the lesser notoriety of the Hellenic printer whose period of activity was so short. On the artistic aspect of these books all writers are agreed, that for the splendour of their ornamentation and the beauty of

their press-work they stand in the very forefront of all books yet printed. The type, which cost Kallierges five years' labour to produce, is of course in the later style, but even when most elaborate it is comparatively dignified, and is unsurpassed for evenness and delicacy of execution. The capitals are extremely beautiful; the type is well set on the page, and the register is accurate. Red ink is everywhere much used, especially in the first book, which is also the most elaborate. The ornament consists of large initials, headpieces in the Greek style, filled with arabesques, and the devices of the publisher and printer, that of Blastos, a masterpiece in its way, being too well known to need further remark. In some copies of the first three books, the Etumologikon, Simplikios and Ammonios, the headpieces and first initial are printed in gold, which, as may be seen by the way some of the adjoining letters are gilded, was added by hand after the type had been inked, and the whole was then printed at one pull. This is the second instance of printing in gold, the first being the Euclid of Erhard Ratdolt published in 1482; the vellum copies of that book have the dedication to the Doge Mocenigo thus treated.

The Ἑτυμολογικὸν Μέγα begins with the poem of Mousouros, which is quoted in full and discussed below. It will be sufficient here to draw attention to the veiled allusion to Aldus in the last lines, as an Italian printer of Greek books. The long preface which follows is hardly less interesting than the poem. It describes the five years' labour of Kallierges to produce a type which should be sufficiently original to serve as the basis of an application for privilege without interfering with the rights of others (μηδενὸς κατ' ἔχνη χωρῆσαι τολμήσας δέει τῆς παρανόμων γραφῆς), as had been done by his immediate predecessors, Bissolus and Mangius, with disastrous results. As in the poem, no direct reference is made to Aldus, but one sentence undoubtedly alludes to his work. After praising the Dictionary, Mousouros adds: ὁ γὰρ ἐν τούτῳ κεκτημένος, εἴτε τις κέρας Ἀμαλθείας αὐτὸ βούλοιτο καλεῖν, παντοίοις καρποῖς ὑπερβρύον, εἴτε κηρίον, εἴτε κήπους Ἀδωνίδος, τὴν ἐπιτομωτάτην ἐβάδισε. This refers of course to the volume of grammatical works issued by Aldus under the title Θεσαυρὸς, κέρας Ἀμαλθείας, καὶ κήποι Ἀδωνίδος.

The two philosophical commentaries, Simplikios on the Categories of Aristotle, and Ammonios Hermeias εἰς τὰς πέντε φωνάς, are on

The Great
Etymo-
logikon.

Simplikios,
Ammonios,
and Galen.

a smaller scale; they are not printed in double columns, and have no mention of Kallierges, no prefaces, or any other information bearing on the press. The Galen, the last of the four books, is no better off in this respect, but two very interesting letters of Mousouros concerning it are printed by Didot (Alde Manuce, pp. 516, 518). The first, to Kallierges, relates to the purchase from Nicolaus Leonicensus of the manuscripts, written partly by Mousouros himself, partly by Alessandro Bondini. The second, to Ioannes Gregoropoulos, his brother-in-law, is dated from Ferrara, 7 September 1499; it is written in a more familiar style, and is notable as containing transliterations of technical Italian words concerning printing, as καδέρνα, σταμπάρειν. It also mentions the completion of the Simplikios (which is actually dated October); but its chief interest is perhaps that being a dated letter written at a time when the copy for the Galen was not yet bought, it gives us certain knowledge that the whole of this large folio of 112 leaves, and 50 lines of about 50 letters to each page, that is over 500,000 letters, was made ready for press, set up, corrected and printed off in twelve months; it is dated 5 October 1500.

Privileges
obtained by
Blastos.

Blastos obtained two privileges for his press; abstracts of them are given by Fulin. The first, dated 21 September 1498, states that he has caused to be cut a fount of most beautiful Greek letters, united with their accents ('unide cum i suo'accenti'), as has not been done before either so well or so beautifully. He asks for a ten years' privilege for all Greek books printed with these characters, in order to avoid the rivalry of imitators who seek to reap where others have sown, with small expense and little toil. On November 28 of the same year he asked for a privilege of twenty years for the Ἑτυμολογικὸν μέγα and all commentators on Aristotle.

The poem of
Mousouros
describing

Of these two privileges the first is the one of most interest, because of its mention of the nature of the type for which the privilege was sought. But if we had only this to guide us, we should naturally suppose that the letters and accents were cut together on the same punch; and the appearance of the type certainly shows that the accents were not inserted after the Aldine fashion. Fortunately we have also the elegiac poem of Mousouros, which is printed on the first page of the Ἑτυμολογικὸν μέγα. As this

is one of the most important documents in existence for the technical details of early types, and is moreover not easy of interpretation, I give it here in full, together with a literal translation, before proceeding to comment on it:—

Kallierges' method.

Ἐκποθεν ἀφράστοιο φανείς, φύγαδ' ἔτραπεν ἄφνω
αἰετὸς οἰωνῶν ὑψιπέτης ἀγέλην.
τεθρίππων ἐπιβάς, σέλας ἡμάλδυνεν ὁμαίμου
ἥλιος, ἡδ' ἄστρων φρουδὸν ἔθηκε φάος.
τῶς δὲ χαρακτήρων ἀπεχάσσαστο τῶνδε τὰ πρόσθεν
γράμματα καὶ ῥίνης ἔκγονα καὶ δονάκων.
θεύμαι γλυφανῆς πῶς τις σμίλης κοπίδεσσι
ἔεσσε περιπλέκτων ὄρχατον ὧδε τύπων,
πῶς δὲ μεταεὺ τόνους γραμμῶν στήριξεν ἀάπτους
ἰθυτάτων, φθόγγοις πάντας ἐπικρεμάσας.
ἀλλὰ τί θαυμάινω κρητῶν φρένας; οὐς ποτ' ἐφετμαῖς
πατρός Ἀθηναίῃ δαίδαλα πολλὰ δάεν.
κρῆς γὰρ ὁ τορνεύσας, τὰ δὲ χαλκία κρῆς ὁ συνείρας,
κρῆς ὁ καθ' ἑν στίξας, κρῆς ὁ μολυβδοχύτης.
κρῆς δαπανᾷ νίκης ὁ φερώνυμος· αὐτὸς ὁ κλείων
κρῆς τάδε. κρησὶν ὁ κρῆς ἥπιος αἰγίλοχος.
τοίγαρ εἰ μὲν εὐχόμεσθα, πέλοι γενετῆρα χορηγοῦ
μὴ δίχα μάντοσύνης οὐνομα παιδὶ θέμεν.
νικῶ δ' ἀντιπάλους. νεῦσε Ζεὺς· οἱ γὰρ ἀφ' ἱρῆς
ἐλλάδος ἐλλάνων παισὶ πρέπουσι τύποι.

'Appearing out of the unknown, the soaring eagle on a sudden turns to flight a host of lesser birds; mounted on his car, the sun dims his sister's beams, and effaces the light of the stars. So before these characters shrink back the former letters, creatures of file and reeds. I marvel how by the cuts of the fashioning graver one shaped thus the row of intertwined types, and how he fixed the minute accents between the straightest of lines, hanging them all on the vowels. But why wonder I at Kretan wit? for aforetime by the hest of her sire Athena learned them many crafts. A Kretan fashioned the letters, and a Kretan joined together the pieces of brass; a Kretan pricked them into one, and a Kretan cast them in lead. A Kretan pays for all, who bears a name of victory; he

who sings now is a Kretan. To Kretans the Kretan aegis-bearer is kindly. Wherefore let us pray with one accord, that the sire of our patron may have given a name of true prophetic meaning to his child, and may he vanquish his rivals. Ζεύς nods yeasay: for to the sons of Hellenes the types from sacred Hellas excel.'

The lesser difficulties in this need not detain us long. The last clause seems to mean that Hellenes should prefer books printed by a Greek firm to those of Italians like Aldus. The expression 'creatures of file and reeds,' as applied to the older types, is puzzling; the reed must apply to writing, and the phrase will then mean 'the first printed books and the manuscripts.' But this is hardly satisfactory, because a reference to writing, especially as γράμματα, seems out of place. It is at least interesting to have contemporary evidence of the large use made of the file by the compositors of the early press. The name of victory in line 15 is of course Νικόλαος (Βλαστός). We now come to the middle of the poem, which contains the real crux, and it seems best to give the interpretation of Didot (Alde Manuce, p. 549 sqq.), who had actual experience of printing, together with his notes, placed in brackets, and to comment on that, rather than to attempt any explanation of my own.

'Ainsi ont disparu les caractères antérieurs, ces produits de la lime et du roseau [il indique par là les essais plus ou moins informes des types grecs que l'on rencontre quelquefois dans les éditions princeps des auteurs latins imprimés par Jean Schoefer à Mayence, et par Vindelin de Spire et Nicolas Janson à Venise], et j'admire comment à l'aide du burin fut sculptée et ciselée cette rangée de types si compliqués, et comment on est parvenu à fixer les accents, presque insaisissables, suspendus et si bien d'aplomb sur les voyelles entre ces rangées de lignes. [Précédemment on fondait séparément les accents, et on ajustait ces petites pièces dans les entrelignes, en les plaçant sur les lettres plus ou moins exactement. Il fallait donc, en composant une ligne de ces accents, les disposer de manière que chacun d'eux se trouvât placé juste au-dessus de la lettre qu'il devait compléter. Mais ce procédé imparfait, employé à Paris par Gourmont pour ses impressions, et à Anvers par Martin d'Alost, et par d'autres, fut bientôt abandonné. Le moyen si ingénieusement et si exactement décrit par Musurus, qui déjà avait été adopté par

Alde, fut un immense progrès pour l'impression du grec.] . . . C'est un Crétois qui a ciselé ces poinçons [les accents gravés séparément et aussi sur acier devaient être disposés de manière à pouvoir s'adapter sur le poinçon au moyen d'une encoche], c'est un Crétois qui a adapté les petites pièces d'airain [ces accents, ajoutés successivement, καθ' ἑν, sur chaque poinçon, qui était encoché, ne formaient plus qu'un seul et même poinçon de ces deux pièces liées ensemble par un fil solide], c'est un Crétois qui les a réunies, c'est un Crétois qui les a accouplées [c'est de la réunion des accents en les liant sur les poinçons qu'il est ici question], c'est un Crétois qui les a enfoncées [dans une matrice à cuivre], et c'est un Crétois qui a obtenu la fonte des lettres en plomb [au moyen de ces matrices].'

Mr Didot, though probably right in his general conclusions, seems to me unfortunate in many of his details. His translation of the two critical passages suffers in the first by a looseness of paraphrase which fails to render the original, and in the second by his making six processes out of the four described in the text. His explanation of the ῥίγη καὶ δόνακες seems insufficient; what do the words mean? And Mousouros could not refer to the Graeco-Latin types only, and deliberately ignore all the preceding Greek types, when he speaks of τὰ πρόσθεν γράμματα; nor would there be any point in a comparison of a book wholly Greek with a Latin text containing Greek sentences. Then the process described in Didot's second note is, as we have seen, one of the most uncommon ways of inserting accents, and found in only two types of the fifteenth century, both of Didot's examples (as to the Antwerp type he is quite wrong) being of the sixteenth century, and therefore not applicable in the present case. Again, whatever view we may take of the present poem, there can be no question that the Aldine process was entirely different. The three questions that have to be answered are; first, what is the meaning of the passage θεῦμαι . . . ἐπικρεμάσας? second, what process is described in the second passage (κρῆς γὰρ . . . μολυβδοχύτης)? third, how can the two be reconciled?

In the first passage, the first two lines are clear enough, despite a doubt as to the exact sense of κοτῆς (the knife-edge, or the cuts produced by it); the word περίπλεκτος describes admirably the general effect of the type on the reader, and probably also on the unfortunate compositor. It does not much matter whether ἄπτος is to be

rendered 'untouchable,' i. e. because of their smallness, or 'invincible,' i. e. unrivalled, which is the more usual meaning. It is the action described as fixing, or making firm the accents between the lines of type, and hanging them above the vowels, which seems inapplicable to a type of this character, and irreconcilable with any sense that can be extracted from the second passage. In this four things are described; the first, which is the cutting of the punches, and the last, the casting of the type, are not to be mistaken; the other two processes, described as *συνεῖρειν τὰ χαλκία*, to string together the pieces of brass (which cannot therefore be steel punches, as Didot says, but may conceivably be copper, which seems to have been the usual metal at that period); and *καθ' ἑν σίζειν*, to prick, or inlet them so as to make one piece of them, must be intermediate. The second probably describes the sinking of the punch into the bar of softer metal by striking, *καθ' ἑν*, so that the two pieces of the punch make one matrix; and Didot's explanation will be the right one, that the punch-cutter did something of this kind. He cut a punch for a letter, say α, of some two-thirds the height of the body which it was intended the type should have, and made a small hole in one side of it. He also cut an accent of, say, half the height of the letter, with a pin on one side corresponding to the hole in the letter-punch. The accents could thus be used with any letter by simply fixing them on to the punch, and the matrix could be struck from the combined punch, while the unaccented letters could be provided for by a second punch, of the full height, or possibly by a simple adjustment of the type-mould. In this way (though in fact a good many accents of each kind were cut for the sake of variety) the necessary accents and breathings would be less than a dozen, and the work of the punch-cutter much lightened, though of course the size of the case for the compositor would be much larger than in the Aldine types, and his work of adjustment simpler. But I confess that I cannot see how the words *τὰ χαλκία συνεῖρειν* can refer to this process under any interpretation; nor how the two passages can be reconciled with one another; because a type cast in this way would have a solid body, and how then could the accents be said to be fixed between the straight lines of type and hang over the vowels? Having attempted to state the problems and difficulties raised by this poem, I am compelled to leave them

unsolved: it must not be forgotten that the exigencies of metre may have hampered Mousouros greatly in an effort to be clear and precise, and that he had to find Greek words sufficiently dignified for verse, to describe technical processes which it would have been difficult to make plain in prose—processes, too, which are unknown to the modern type-founder, and can only be guessed at by us.

If we turn to the books themselves, we find confirmation of Description of the type. Didot's explanation of the process in the uniformity of the accented letters; the same accent is always found on the same letter, though there is a considerable number of different accents. For instance, in the facsimile on plate XXI, the circumflex accents of πᾶς (line 2), αὖ and κᾶ (line 3), τῶ and ὦ (line 4), are all different; so also with the acute accents of ὁ, ὕ, δὶ in line 1, and with the grave accents of ᾶ, γὰρ, τὸ, also in line 1.

The number of variant letters (except ε) is few, however, in comparison with other late founts, and the iota subscript is not used. A comparison of the type, and of the few spaces which have worked up shows that the letters are set low on the face, but not to such a degree as in the Aldine Laskaris. The interlinear space being four millimetres, three of these belong to the lower, and only one to the upper line; a few tails, such as those of χ and ρ, fall below this limit, and a large number of letters, especially abbreviations, rise above it; these are probably kerned in both instances. The kerns are sometimes extremely complicated; thus in lines 16 and 17, where καὶ is immediately above ἐνί, the tail of the ι in καὶ projects so as almost to touch the breathing on ε of ἐνί, while the accent of ἐνί, which comes just beyond the end of καὶ, runs much higher up. The ἀλλ' and δὺο at the end of lines 26, 27 is a similar example. There is a large number of long and intricate abbreviations, some of them most unusual, as μάλλον, μάτων, μερῶ, ὕπαρ, γίγνεται, πάντα, πάντων, λόγο, περί, γράφεται, ἔχει, σημαίνει, ἀντὶ τοῦ (as in the Souidas) and οἶον, of which there are two different ones; besides commoner forms like ἐστὶ. The number of three and two-letter ligatures must be very large, probably two hundred or more.

With this remarkable type of a noteworthy printer we take leave of the Greek books of the fifteenth century. It only remains to say a few words about the Graeco-Latin types found in books of Italian origin from 1476 to 1500; to mention briefly the first

books printed in Greek in other countries; and to give a very short sketch in conclusion of the later history of Greek types.

VII.

Latin books
with Greek
words,
1476-1500.

The mass of Latin books which contain Greek words and sentences, printed from 1476 to the end of the century, is so enormous that to make a complete examination of them would require half a lifetime, and the harvest would be very small, on account of the great sameness in the Greek types which run through them, and their almost uniform want of originality. I propose therefore, in dealing with the Italian books, to confine myself to a few specimen founts, and to treat them as briefly as possible, taking the Venetian books first, and afterwards those of the other Italian towns.

Venetian
larger types.

The larger types in the later Venetian books are all modelled on Jenson's or Wendelin's founts, but as time goes on depart more and more from their exemplars. The letters used by Jacobus of Fivizzano in 1477, in the *Paradoxa* of Cicero, seem to be based on Wendelin, but are not very well cut. Those of Andreas de

bro pauca sumpsi: & adscripti. Διατὶ τὰ ἀπὸ χιόνης: καὶ χρυσά-
λων ὕδατα. φανλαῖς ἰν ὀπιωαντὸς αδουτος πηγνύμενον. τὸ
λεπτότατον διαπνεῖται. καὶ κουφότατον ἐξατμίζει. σημεῖον δὲ
ὅτι ἔλαττον γίνεται. ἢ πρότερον ὅταν τακῇ παγὲν. ἀπεληλυθόν-
τος δὲ οὐν τοῦ ὑγίεινοτάτους. ἀνάγκη τὸ κατάλειπόμενον χεῖρόν ἐ-
ναι. i. cur aqua ex niue glacie uel liquata: sit uitiolæ? An q̄a cū aqua

FIG. 23. VENICE, ANDREAS DE PALTASCICHIS, 1477.

Paltascichis, as found in his Aulus Gellius, also printed in 1477 (fig. 23), are a close copy of Jenson, and very much resemble the Ferrara type shown in fig. 19. The unknown printer of the Letters of Cicero, dated 1480, was one of the first who had types of different size for text and commentary; the smaller is the better of the two, the larger being very rough; but neither has any accents.

The large types of the eighties and nineties fall mostly into two main groups, examples of which are given in figs. 24 and 25. The general rule in the eighties, or among the smaller printers, is that one set of punches was made to do for two types, a larger for the text, and a smaller for the commentary; in the latest period the best printers had a different fount for the text and the commentary. The two groups spoken of may be distinguished both by their size of face and by their general appearance; the specimens given in figs. 24 and 25 are fairly representative. The first of the two has a larger 'Locatellus' face and is more regularly cut than the second, but the forms of the letters are practically the same in both groups, or if they differ, the difference exists as often as not between types of the same group. Thus the fount shown in the first of the two facsimiles is taken from the Aulus Gellius printed by Bernardino de' Cuori in 1489. Its characteristic features, outside the regularity and size which make it the best type of its class, are the high ς , the open π , and the ω almost closed at the top. Another similar type, used in the Lactantius of 1490 printed by Theodorus de' Ragazonibus, agrees with the first in the ς and ω , but has the closed or balloon π , uses the Latin x for χ , and is altogether an inferior fount. A third type of the same class is used by Bonetus Locatellus; it is in appearance more like that of B. de' Cuori than that of Th. de Ragazonibus, being a fine bold and regular type, but it has σ for the final ς , the ς , low, not high, is used as σ , the balloon π is universal, and the ω is more open at the top. Many other instances could be given, but these are enough to indicate the main features of this group, which is far smaller than the other, or Pincius group of types. These are as a rule irregular in outline, unevenly cut, with a smaller face than the types of the Locatellus group, the forms of the letters less pronounced, and usually disfigured by eccentricities in the shape or position of certain letters. There is a certain number of types of which it is difficult to say whether they belong to one or other group; such is that of Joannes Tacuinus, as used in his Gellius of 1496, which in its size belongs to the Locatellus group, but in its manner of cutting rather to the other. The type used by Pincius in his Priscian of 1492 is a very similar case; but in this book it changes at sig. F, and is replaced by a regular Pincian Greek, with a ρ and χ standing on the line; it retains the ν of the larger

sunt ex libro de historia aialiu sexto. λέων λέοτι μένο χέυει ὅπιθεν καὶ ἐσιν ὅπιου
ρητικόν. εἴρηται πρὸτερον: ὁ χέυει Δέ καὶ τίκτει ὅυπᾶσαν ὥραν. καθέκας τὸν μέ
Τοί ἐνιαυτόν. τίκτει μὲν ὅυν τοῦ ἔαρος τίκτει Δῶσεπι τὸ πολὺ Δύο Τὰ μὲν τὸ
πλεῖστα ἔξ. τίκτει Δ' ἐνί ὅτε καὶ ἐν. ὁ Δ' ἐλεχθεῖς μῦθος περὶ τοῦ ἐκβαλλεῖν τὰς ὕς π
ρας τίκτοντα ληρώδης ἐσιν. συνετ' ἔτη Δέ ἐκ τοῦ σπᾶνίου ἐσιν. Τούς λέοντας
ἀπόρουντός τήναι τὴν τοῦτον μῦθον συνῆεν τὸς ἑπανίον γάρ τοι γένος τό τῶν
λεόντων καὶ οὐκ ἐν πολλῶ γίνεταί τόπο. ἀλλὰ τῆς εὐρώπης ἀπάσης ἐν τῷ με
ταξὺ τοῦ ἀχελώου καὶ τοῦ ὑνέσου ποταμῶν. Τίκτει Δέ καὶ ὁ λέων πᾶν μικρὸν
δουτῶς. ὥς τε Δίμηνα ὄντα μολίσ βαλῖειν οἱ Δέν συρία λέοντες. τίκτούσι πε
τάκεις. Τοπρῶτον πέντε. εἴτα ἄξι ἐν ἑλάττονα μετὰ Δέ ταῦτα οὐκ ἐτι οὐ Δέν τίκ
τουσιν. ἀλλὰ γονοὶ Διατελοῦσιν. οὐκ ἔχει Δέ ἡ λέαινα χαιτήν ἄλλο ἀρρὴν Δέ
ων. βάλλει Δέ ὁ λέων τοὺς κυνῶν ὄντας καλοῦ μένουσ' τέτταρας μῶνους Δύο
μὲν ἀνῶθεν. Δύο Δέ κατῶθεν. βάλλει Δέ δεκάμηνος ὦν τὴν ἡλικίαν: idest. Leone

FIG. 24. VENICE, BERNARDINO DE' CUORI, 1489.

ἐπ' ἀμφοτέρῃσι περὶ κληροσὴ μελλεῖν καθευδῆσθαι
κατεργασάσα μετὰ. καὶ περὶ βοῖτόν ἐργῶν
ἐκ τῆς οἰκίας ἐξεβάλετ' ἡν λυποῦσαν. ἡν ἐβούλετο
ἵνεπὶ βλεπῶσι πάντες οἱ τὸ κρέω βύλης προσώπων.
ἡν ἐν γυνῶς εἶχε μετὰ ὕνῃ Δεσποῖνα
καὶ τὴν ὀφινῶν ἐκτίσας οὗτος ἐν πῶν κῶν τοῖς
τολεῖόμενον ἐστὶν τοῦτο σὶ πᾶν βουλομαι.
τὴν νυκτὰ. τὴν πολλῶν κακῶν ἀρχὴν γον.
οἱ μοὶ κρέω βίλην λαβεῖνε με. καὶ δεκά ταλάντα
γυναικῶν οὐσα πηχεῶς. εἴ τε σὶτόφρνα γαί.
εἶπος ἀνυποστάτον. Διάτδ' ἀλυμπῶν.
καὶ ἀθηναν οὐδαμῶς παῖς Διὸς χαρίον. θεράπευτικόν Δέ
λοῦου: Τάχιον. ἀπαγεσθὶ Δετὶ σὶ ἀραυτικά γυνήν.

FIG. 25. VENICE, CHR. DE QUIETIS AND M. DE LAZARONIBUS, 1493.

fount, and has a very extraordinary δ, which I have seen nowhere else; it is not found in other books of Pincius where the same type appears.

These 'Pincius' types divide into two sections; the one is distinguished by an ε with level prongs, and a ρ standing on the line; it is from one of these types that the facsimile in fig. 25 is taken. The other section has an ε with prongs which slope upwards, and the ρ is normal. To the first kind belong the type of Pincius, used at the end of the Priscian of 1492, and in the Priscian and Gellius of 1500; and that of Christophorus de Quietis and Martinus de Lazaronibus, from whose Gellius of 1493 a passage has been reproduced (fig. 25) as an example of this sort of type; the second is exemplified again by Pincius, in the Priscian of 1495, and by Simone Bevilaqua's

ΨΥΧΗ ΜΕΝ ΜΕΧΡΙΣ ΟΥΔΕΣ ΜΟΙΣ ΠΡΟΣ ΣΩΜΑ ΚΡΑΤΗ ΚΑΙ
ΦΘΑΡΤΑ ΝΟΟΥΣ ΑΠΑΤΗ ΘΗΝΤΑΙΣ ΑΛΥΗΔΟΣ ΙΝΕΙΚΕΙ
ΝΗΙΚΑΔ ΑΝΑΛΥΣΙΝ ΦΡΟΤΕΝΗ ΜΕΤΑΣΦΜΑ ΜΑΡΑΝΘΕΥ
ΩΚΙΣ ΤΗΝ ΕΥΡΗΤΑΙ ΕΣ ΑΙ ΤΕΡΑΩΣΑΣΑ ΦΟΡΕΙΤΑΙ
ΑΙ ΕΝΑΥΗΡΑΟΣ ΟΥΣΑ ΜΕΝΕΙΔΕΙΣ ΣΤΑΠΛΑΝΑΤΗΡΗΣ
ΠΡΩΤΟΓΟΝΟΣ ΥΣΤΡΟΥΤΟ ΘΕΟΥ ΥΙΕΤΑΞΕ ΠΡΟΝΟΙΑ.

FIG. 26. VENICE, S. BEVILAQUA, 1497.

Lactantius of 1497 (fig. 26). These two types, though certainly not identical, are both distinguished by a marvellous β, which is seen in fig. 26, line 3. The kind of degraded Jenson fount from which these Pincius types are derived may be seen as early as 1481 in the Priscian printed at Venice by Michele Manzolo, and the Greek type of Ratdolt, shown in his type-sheet of 1486, is very similar.

The smaller Venetian types need not detain us long. The series, as has been seen, begins in 1475 with the Juvenal of Jacques Le Rouge. In 1478 Gabriele di Pietro, in his edition of Merula's commentary on Juvenal, used the same type as that belonging in 1476 to Thomas de Blavis, already described (fig. 13). As used by Gabriele it is noteworthy for the occurrence of the Latin X, either upright or upside down, in place of χ. That which is found on the second leaf of the Isidorus printed by Löslein in 1483 is a much lighter type, resembling Miscomini's, and like that used in

Smaller
Venetian
types.

conjunction with a gothic fount: but the δ is like that of Lisa at Treviso or the Roman printers. The later small types are on the whole rarer than the larger ones; some printers, for instance Pincius in his Priscian of 1492 (see especially sig. q 3^b), being compelled to leave blanks in the commentary, even when they were able to use Greek in the text. In 1490 Giovanni Rossi had no small type for his *Scriptores Historiae Augustae* before the last page of the Suetonius, where it appears for the first time; before that, blanks are left. Sometimes printers trimmed or recast their Greek letters in order to adapt them to their commentary types, e. g. Pincius in 1495; others, like Georgius Arrivabenus in 1488, had only a small type, and used it in the text, no doubt fixing it there by means of leads. The best of these last types are those which are reductions of the larger ones of the Locatellus class; that of which a few lines (from the Macrobius of June 1492, probably printed by Giovanni Rossi)

φορκυνοσ Δέτισίς λμην αλίοιο γέροντος
 εν δημω ιθακησ λυοδε ποροβλητες εν αυτω
 ακταί αψυρρω γες λιμενος ποτι πεσθηοια
 αι τανέμων σρεσώσσι λυσσων μέγα κύμα
 εκτος θέντοσθεν Δέτάνυ Δετμείο μενουσι
 νηετέσ έλωσι όταν όρου μετρον ήκωνται
 αυτάρ έσσι κρατός λιμενος τανυφύλλος έλαίη
 αγχόη λαυτησ άρρορον έσθήρασιν ήροη Δέσ
 ιερον νυμφών αι νηιά Δέσ καλεονθαι
 εν Δέ κρηηρεζε και αμφιφορηεσ έασι
 Δάινιοι ενθο Δέσε ιθασιθεωσουςι μελιωσα

FIG. 27. VENICE (GIOV. ROSSI), 1492.

are reproduced in fig. 27 is a good representative of a type of this kind; they are very beautiful in their way, being for the most part well cut and fairly uniform. They are of the 'cutting-out' variety, but the accents were much more frequently left in than those of the larger types, no doubt because, except in careful hands, like the printer of the Macrobius, their smallness and delicacy made it extremely difficult to use the file on the face of a letter without injuring it. The facsimile taken from the Paris Perottus of 1496 (fig. 36) illustrates well the result of this tendency. In the Arrivabenus Priscian of 1488, the following is an example of how the Greek is printed at the beginning (sig. b 4^b): αμνές φέρων οντ' αδ' ε τ' οι

ωμοσάν αἰών. The o and i in this line is in every case a Latin letter. But farther on in the book this peculiarity largely disappears. This type of Arrivabenus strongly resembles that of Silber (fig. 32), and has the same two forms of δ, one being like that of Löslein just mentioned. It is however rather exceptional, the general run being more or less like that of the Macrobius; a good type of this sort is found in the books of Locatellus (Lactantius, 1494), and somewhat inferior but still fairly regular ones in the Perottus, Cornu copiae of B. de' Cuori dated 1492, the 1490 edition of the same book printed by Baptista de Tortis, the 1489 edition by P. de Paganinis, the 1494 edition by Bertochus, and the Lactantius of Vincentius Benalius, 1493.

Of the printing of Greek in the other Italian cities there is ^{Other places in Italy.} not much to be said, though there is less uniformity and therefore greater interest in the types used outside Venice. The majority ^{Bologna.} however are Jensonian in style. At Bologna Johann Schreiber used in 1478 for his Perottus, Rudimenta Grammaticae, the 1471 fount of Adam of Ammergau (see above, p. 34). The only other printers there who produced classical books to any extent were Benedictus Hectoris (Benedetto Faelli), and 'Plato' de Benedictis (Francesco de' Benedetti). The latter in his Beroaldus, Annotationes of 1488, printed at the expense of Benedictus Hectoris, transposed the Greek words into Latin letters; when Benedictus set up as a printer himself, he had a fount cut in imitation of the second Milanese type in its earliest state; the body is reduced to two-line brevier, and there are no accents; the ε is always used upside down. This type is used in the Suetonius of April 1493 and in the Letters of Pliny, November 1498 (fig. 28).

At Brescia Boninus de Boninis in his Macrobius of 1483 (fig. 29), ^{Brescia.} and again in 1485, used a thoroughly Jensonian Greek of the late seventies, resembling very closely such a type as that of Andreas de Paltascichis, or that of André Beaufort of Ferrara. The type of Bernardino Misinta some ten to fifteen years later was much rougher, not unlike some of the latest larger founts used at Venice, but easily recognised by its θ and ς. The book from which the facsimile (fig. 30) is taken is the Poliziano, which was surreptitiously printed from the Aldine edition by Misinta in 1498 under the name of Leonardus de Arigis, and professes to be

τῷ περὶ φρασμομενῶ. καὶ πολλῶ ρεοῦ τι οὐ καὶ
 λαλῶν. ex eadē ποτα σταμ. Δε ἐκ πλεομεξίας καὶ
 πομῆρας ὡς περ οὗτος ἰσχυρὴ πρώτη προφα
 σις καὶ μικρὸν πταίσμα πάντα ἀμεκατισμ
 καὶ διελυσεν simile hīlιτασχυρισμοισι ἀπα
 σι τοισιν τῇ πολλῇ Δισαμοισι et ibidē συμτορ εἰς
 ταῦτα εἰαιον. προυΔωκας ἀριστογατορ μα
 λλορ Δαὺ ἤρηκας. ὁλωσ μὴ Δε προσοὺς λιτοσ
 εχῶσας λιμεγας καὶ προβαλιμμη ἐπλκας
 προσ τοισιν ὁρμ. ζουσι & διχεται του Δε ου Δε α
 ὀρω τορ ὀρτωρ. τοῦτο βασιλορ ὀρτα ἀπὸ κρη
 μινα φαραγγας βάραθρα. & deiceps Δεδαικα
 μὴ Δοξῆτε τίσι τωρ Δε βουλομεν ἡμεῖς πᾶ

FIG. 28. BOLOGNA, BENEDICTUS HECTORIS, 1498.

ἔνθεν μὲν γὰρ σκύλλῃ ἐθέρωσι Δε Δία χάριν ὕβρις
 Δειγόν ἀγερροίβδῃσι θαλάσσης ἀλμυρὸν ὕδωρ
 ἦτοι ὅτε ξεμέσειε λέρης ὥς ἐν τῇ πολλῇ
 πᾶσ' ἀναμορμύρεσκε κυκώμεν ὑψόσ' ἐδ' ἄχνη
 ἄκροισι σκοπέλοις ἰετ' ἀμφοτέροισιν ἐπ' ἵπτεν
 ἄλλ' ὅταν αὖτις ἀναβρώξει γε ἀλμυρὸν ὕδωρ
 πᾶσ' ἐνθόσ' φάνεσκε κυκώμεν ἀμφὶ Δε πύτρῃ
 Δειγόν βεβρῦχει ὑπ' ἐνερθε Δε γαῖα φάνεσκε
 ψάμμω κυάνῃ.

FIG. 29. BRESCIA, BONINUS DE BONINIS, 1483.

Αὐτὸς πᾶν τεοῖ μετὰ πρεπείη ἡθεοῖσιν
 ἰσσοῦσιν καὶ ὁλοισι μεγέροχος : οὐκ αἰετῶν Δε
 Οὐ Δε βιβλῆσι σοφίην ασκῶν Διδυμοσιν γλωττῇ
 πρᾶος. ελευθερίος γλυκύς. οὐκ ἀπρὸς ἡγορός. εὐφρων.
 Εἰπε τυχῆν· βασιλεὺς. ἀρκεί τα Δε τορ γοι Δωνα
 Εἰ πασ' ἀνικητοῖ ὁ πατὴρ ὄνον· ἡγεμονῆα
 Οὐρβίνου μεγὰ λοιοθεοῖς ἐναλίγκιον ἀνδρά.

Εἰς τὸν πικρόν.

πολὺ ἀκί τοξευθεῖς φλεχθεῖς εὐπὸ πικρὸς ἔρωτῶν
 Οὐκ ἐτ' ἡ προτέρω· πάντα Δαφειλεθὸς πλά
 Τοξά. βελή. φαρετρας. καὶ νηῆσ' αὖ τα Δε πάντα
 ἠφ' ἐν ὁμοῦ σῶρορ λαμπάσι ληιδιοῖς.

FIG. 30. BRESCIA, B. MISINTA, 1499.

Florentine work (see Mr R. C. Christie in the *Bibl. Soc. Transactions*, iv. 233).

The only information I can discover as to the existence of any Florence. Greek type in Florence before the Homer of 1488 is given in a note of Fineschi (*Notizie storiche sopra la Stamperia di Ripoli*, 1781, p. 36), who, under the year 1481, says: 'fu fatto provvista di rame per fare le Madri della lettera greca'; but whether this type was ever cast does not seem to be known; at least no book containing any Greek letters can be at present found among those which the Dominicans of Ripoli printed. But in 1489, a year later than the Homer, a new Greek fount of no small interest makes its appearance. It occurs in the *Miscellanies of Poliziano*, printed by Antonio Miscomini, and finished in September of that year. This work contains, besides isolated Greek passages, the original text of an entire hymn of Kallimachos (εἰς λουτρὰ τῆς Παλλάδος), occupying more than four pages. It is from part of this that the facsimile in fig. 31 is taken. The type is in some ways unlike any other, though the model for it may be found in the Parma fount (plate IX). A good deal smaller than its prototype, and greatly improved in many respects, it is remarkable for the entire absence of accents, breathings, and apostrophe. But if, as must be supposed, Poliziano himself had some voice in the matter, this rejection of accents must be held to be due to a deliberate decision in favour of greater simplicity. This is certainly attained; for the entire fount consists of twenty-seven Greek sorts. There is not even a ζ, but σσ is used (fig. 31, line 2), and there are two varieties of π (both in line 2) and τ (both in line 7). In addition, the i and k of the roman type have been adapted, the first by the loss of its dot (line 3, first letter), and the second (last line) by cutting down its height. The iota subscript is provided for by the addition of an iota after the letter. The individual letters are mostly admirable, and the general effect is certainly very good, in spite of an excess of white between the lines: the type seems not to be leaded, though the face does not occupy the whole depth of the type; for it corresponds in body with the two-line brevier roman, which exhibits the same peculiarity in a less degree. But the face of the Greek is not larger than pica, and when it is used for phrases embodied in the Latin text the difference in size is so great as to be distressing.

Milano.

As has been mentioned in describing the few Graeco-Latin types of the early period, the Milanese printers were astonishingly slow in introducing Greek letters. Though Zarotus and Filippo da Lavagna printed a very large number of editions of the classical writers, blanks

και περ αθαναιαι καταθυμιον ευσαν εταιραν
λη ποτε γαρ πελων λυαμενα περονισ
ιωω επι κραναι ελικωνιδι καλα ρεοισα
λωντο. μεσαμβρινα δειχορος ασυχια
αμφοτεραι λωντο. μεσαμβριναι δεσαν ωραι
πολλαδασυχια τηνο κατειχεν ορος.
τειρεσιας δετι μουνος αμαι κυσιν αρτι γενεια
περκαζων ιερων χωρον ανεστρεφετο.
διψασας λαφατοντι ποτιρροον ειλυθε κρανας
σχετλιοσ ουκεθελων δ ειδε τα μη θεμιδεις
τονδε χολασαμενα περ ουως προσεφασεν αθανα
τισ σε τον οφθαλμωσ ουκετ αποιστομενον
ω ευηρειδα χαλεπων οδον αγαγε δαιμων
α μεν εφα. παιδωσ δομματα νυξ εβαλεν
εσταθη λαφθογγωσ εκολλασαν γαρ ανιαι
γωνατα. και φωναν εσχεν αμνηχανια
α νυμφα δεβησε. τιμοι τον κωρον ερεφας

FIG. 31. FLORENCE, ANT. MISCOMINI, 1489.

are the uniform rule in all books of theirs which I have seen, with the single exception spoken of above (p. 39). It is the same with the numerous classical texts printed from 1478 to 1480 by Leonhard Pachel and Ulrich Scinzenzeler. Nor, when in the late eighties Greek types begin to appear, are they worthy of notice; that of Scinzenzeler (whose brother, it must be remembered, was the printer of the Isokrates of 1493), used in the Vergil of 1490, and as late as 1498, is a very rough and poor copy of the smaller Venetian founts. The Le Signerre brothers, in their great edition of Cicero, obtained the use of the type of Bissolus and Mangius, who had shortly before reached Milano from Venice. It is to be noted that whereas the volume containing the Rhetorical works, which is

dated 1498, has blank spaces left for the Greek words, the two volumes containing the Letters and the philosophical works have this Greek type, with some of the modifications which first appear in the Soudas; as we know from the preface that the edition was not completed before October 1499, these latter volumes must have been passing through the press at the same time as the Soudas, which was finished in November 1499.

The Parma type used in the Nonius, Festus and Varro of 1480, Parma has been treated above in connexion with the edition of Chrusoloras (p. 87).

The Pavia presses were almost exclusively devoted to the printing Pavia. of legal and medical books; the Panegyricus in synodo fratrum minorum, by Nicolaus Lugarus, which seems to be of Pavian origin, of about the year 1485-1490, is the only book containing Greek letters that I have met with.

At Rome the production of classical books almost ceased before Rome. the year 1480: the only one of the later printers who had any Greek type seems to be Eucharius Silber. The Greek found in his edition of Barbaro's Castigationes Plinianae (1492-1493) is extremely like that used by Arrivabenus in 1488, but the breathings are unlike those

φῃσι ὁ πνευγορείος τῆς ἐκ γεμέσεως ἐρίδα καὶ πλατύφυλλον τέτατον
ἀκαυλον ὑπὸ τῶν πνευγορείων λέγεσθαι ἐνρουχον ὑπὸ δὲ γυναικῶν
ἀσυλῖδα. διουρητικὸν γὰρ παρασκευάζει καὶ ἐκλύτουσ προσ τὸ ἀφρο
δίστα. ἔστι δὲ κρατὶς ἡ ἐσθίεσθαι.

FIG. 32. ROME, EUCH. SILBER, 1492.

in any other fount (fig. 32). The small size of the letters in relation to the body and the two forms of the delta are points common to Silber and Arrivabenus; the shape of v is unusual in a Graeco-Latin type. The Greek is used with both large and small Latin types; it agrees with the larger, which is two-line brevier, but the smaller, which is between pica and english, has to be leaded, where it is used; the leads are inserted only above those lines in which Greek words actually occur, so that the appearance of many of the pages printed in the smaller type is greatly injured by the unequal amount of white between the lines, though this is perhaps a lesser evil than the alternative of leading out the whole of this part of the

book. The small size of the face would have made it quite easy to recast the Greek fount on an english body.

Treviso.

The last of the Italian towns with which I shall deal is Treviso, where there was a good deal of Greek used. Of the type of 1475 mention has already been made (p. 45). In 1477 Hermann Lichtenstein printed the *Orthographia* of Tortellius for himself and Michele Manzolo. The Greek type in this book is a black, rough copy of Venetian types, with a few acute accents; it appears to be based on the letters of Wendelin of Speier rather than on those of Jenson; but the two points most noteworthy are, first, that the usual size-relation between roman and Greek founts is in this instance reversed; the roman is an english type, with a small pica face, while the face of the Greek is english like the body. The second point is that the larger letters in the composite fount which Dionysius Bertochus employed at Vicenza in 1483 come from this type; a few of the smaller letters, as we have already seen, belonged to the Venetian type of Manzolo in 1481. Lichtenstein's reprint of his edition at Vicenza in 1480 is set up in a larger-faced roman fount of the same body, and the same Greek type is used. The commentary of Hubertinus Clericus on Cicero's Letters was printed by Manzolo on 30 March 1480; the type is a small one, and the Greek letters are almost if not quite the same as those of Thomas de Blavis, 1476 (fig. 13). Soon afterwards Manzolo moved to Venice, and the type in his Priscian of the following year is a different and inferior one. The next printer of note at Treviso was Giovanni Rossi of Vercelli. In the Suetonius of 1480, which does not contain his name as printer, most of the Greek is omitted; but a few words are inserted (e.g. on sig. a7^a) in an extremely clumsy and rude character, which seems to be intended for a copy of a Jensonian type. The δ , which is occasionally used also for σ , is of the most curious form. The edition of Quintilian, which Rossi and Dionysius Bertochus jointly produced in 1482, has a smaller type, approximating to the late Venetian smaller types, and, from its comparative neatness, probably cut at Venice. This is not the type found in the hands of Bertochus the next year, at Vicenza, yet it may have belonged to him, because in that year (1483) Rossi's edition of Pliny's Letters, a book for which Greek was much wanted, appeared with blanks throughout where Greek ought to be, though the roman type is the same as in the Quintilian.

Early Greek printing in other countries than Italy can be dismissed very briefly. From 1466, the date of the second edition of Schöffer's Cicero, there is no trace of Greek letters for twenty years. By that time a movement in sympathy with the new learning was beginning to make itself felt in Germany, and a few of the printers were in it. For them its chief notes were the demand for classical texts, and for roman types to print them. With the roman types Greek letters naturally made their appearance. It is in 1486 that the first roman founts of the second period of printing are found in the hands of the Basel printer, Johann von Amorbach; and his edition of the Letters of Francesco Filelfo, which belongs to that year, though it is not dated, contains a good deal of Greek in a type which appears to be independent of its predecessors or not derived directly from Italian models. It has many remarkable

Greek printing outside Italy.

Basel, 1486.

& Homero, Legat tertium uersum iliados ad principium.
 πολλαὶ διφθιμοὺς ἔχουσιν αἰδι προίατ' ἐμναῶν.
 Legat apud eundē poetam cum paulo post tam uachemen
 tius illius iræ tāq̃ perniciose quā proluerat: causam narra
 tiurus aggredit̃. ἔξου δὴ τὰ πρῶτα διασητὴν ἐρίσαντε
 ἀτρεΐδης ἐναΐαν δρώων καὶ δίοσ' ἀχιλλεύς τις τὰρ
 σφωέθρων ἐριδι ξυνέηκε μάχεσθαι: Διγρᾶca qui norit

FIG. 33. BASEL, JOH. VON AMORBACH, C. 1486.

features, not the least being the interlocking of the lines by means of kerning the high and low letters, perhaps the earliest application on a large scale of this practice, which another Basel printer, Kesler, adopted in the same year: types with kerned capitals are however found as early as 1470. Kerning is common to both roman and Greek types in the Filelfo. Some accents and breathings are used, set high above their letters, and close under the short letters of the line above; also, a rare feature in a type of this class, ligatures of $\sigma\theta$ and $\sigma\sigma$. The κ , shaped almost like x , and the two forms of λ should also be noticed. Though it is difficult to say for certain, I am inclined to think that this type was not designed on the 'cutting-out' system, from the different height above the letters at which accents and breathings are found (see the facsimile, fig. 33), as well as from its apparent freedom from direct Italian influence. Kesler

used a type similar to this of Joh. von Amorbach in his Jerome of 1497.

In 1488 the Vocabularius Breuiloquus, printed at Strassburg, has the letters $\chi\rho\varsigma$ on sig. L 6^a, col. 2; but these cannot be called a type. None of the other Strassburg printers had any Greek letters: Prüss in 1495, Martin Schott in 1498, Grüninger in 1499, all leave blank spaces. In the Epitome de mensuris syllabarum of Peter Schott, printed in 1500 by Johann Schott, the Greek words are cut in wood. The same is done at an earlier date at Heidelberg in the Nosce te of Giovanni di Dio, printed in 1489; the words $\gamma\iota\omega\theta\iota$ σεαυτὸν, which occur both on the titlepage and in the colophon, are cut on wood, and the block is the same in both cases.

Nürnberg,
1492.

The next actual type which I have found is in the Koberger Vergil of 1492. In the commentary which surrounds the text the Greek words are printed in a pica type, which, as may be seen from the

fa. Est aut̄ Home. verſus. Εὐπέτενον
μοι μουσαί Ὀλυμπία Δῶματι
Χοῶσι μῆιδ' ἄρθεα ἔστε μαρράτα
τειρέτε πάντα ἡμεῖς δεκτέοι
ὄνακουσ' ἔν' οὐλετι ἰδμεν οἷ
τ' ἰνέσ' ἡγέμονέσ' ἀνάνων καὶ κοί
ρανόησ' ἔν. Quib' arserit ar. aut spē.

FIG. 34. NÜRNBERG, ANT. KOBERGER, 1492.

facsimile in fig. 34, is, like the two roman types of the book, based on Venetian founts, though with individual features of its own. Some of the accents are just indicated by lines which are often little more than dots; the clumsy substitute for gamma, the $\tau\rho$, the unequal height of many of the short letters, such as π and μ , the shape of this last letter, the absence of ς , and the awkward treatment of the χ to avoid kerning, are points worthy of notice. In the commentary to his Cicero De Oratore of 1497, which is printed with the same roman types, Koberger left out the Greek words. At Erfurt in 1500 appears the first character of three used there in that year and the next. It is an exceedingly rude type of English body, without either accents or breathings; in some respects it suggests a model of the Graeco-Latin class, but it must have been made by a punch-cutter wholly unused to such work. It is at any rate so barbarous as to defy con-

Erfurt,
1500-1501.

jecture as to the model on which it is based. The book in which it is found is the Kanzleibüchlein printed by Wolfgang Schenck in 1500 (fig. 35). In 1501 Schenck issued an edition of Priscian *περί συντάξεως*, in which the great majority of the Greek passages, which form about a fortieth of the whole book, are printed, though a few sentences or single words in a sentence are left blank where the compositor could not read his copy. The presence of the Greek is carefully noted on the titlepage ('*graecanica scriptura*') and in the colophon ('*graecis literis, id quod in Germania nunquam antea*

Ἐπιβίβασιν ἑννενίης ἑπτῶν πολυμ
 ορφεα πλῆθῆν
 γραμματικὸν τεπλοκάσ
 καὶ λογοδαδελίην
 δακτυλῶν ἡρώων καὶ
 λοιδοπολὺ χοριαμβόν
 συνβαλίησ' ἁορῶ
 σῦρματα τεράλιχορῆσ
 σῶταδικῶν τεκιναιδόν
 ἰωνικὸν ἀμφοτέρωθεν
 ρυθμῶν πινδαρικῶν
 ἐννομὸν ἐνεπτιήν
 εἰλιπτοδῆνο καζόντα καὶ
 οὐσκαζὸν δατριμετρὸν
 οκτώστου κύδου
 ἐννεα ἡρόδοτου

FIG. 35. ERFURT, WOLFGANG SCHENCK, 1500.

contigit, pro necessitate expressa'): the ambiguity of the phrases has led writers who have not seen the book to suppose that it is printed wholly in Greek. The type is pica, resembling the 1500 fount, but smaller, thinner, and far less crude: the letters range fairly in size, though they straggle a good deal, and look as if they might be copied from one of the early Roman-greek types. In 1501 Schenck also printed an elementary Greek grammar. In the same year a rival Erfurt printer, Paul Hachenborg, imitated Schenck's Latin and Greek types both, in his edition of Marschalk's Grammar. It was in fact probably Marschalk who is primarily responsible for this sudden outburst of Greek types at Erfurt.

It is not easy to say at present which is the first book printed

in Germany wholly in Greek. The *Εισαγωγὴ πρὸς τῶν γραμμάτων ἑλλήνων*, printed at Wittenberg in 1511 by Johann Rhau, or Grünenberg, is probably, like the Erfurt books, only partly in that language; but in 1513 the same printer issued the Greek text of the *Batrachomachia* with a Latin version. The type used in this is a small one, not unlike that of Gilles de Gourmont, but wholly destitute of accents or breathings. In 1511 Matthias Schürer issued at Strassburg the *Syntagma de Musis* by Lilius Gregorius Ziraldus, 'non omissis accentibus in eis quae Graeca sunt'; and in 1512 he printed 'Elementale introductorium in nomenclum et uerborum declinationes graecas.'

The Old and
New learning in the
German
presses.

These are of course the rude beginnings; in the first quarter of the sixteenth century the rise of presses founded definitely in the interests of the renaissance, controlled for the most part by scholars and men of letters, and devoted almost wholly to the dissemination of classical learning and literature, began to be prominent. They worked alongside of the transitional presses of Basel and Nürnberg, and of the older presses which were still devoted almost exclusively to works of theology, civil and canon law, and scholastic philosophy. The *Sodalitas Celtica* at Nürnberg, Matthias Schürer at Strassburg, Hans Miller at Augsburg, Valentin Schumann at Leipzig, Cervicornus, Soter, Gymnicus and others at Köln, Thomas Anshelm at Pforzheim, Tübingen and Hagenau, and Froben at Basel, were the chief representatives of the modern school in printing; and one has only to compare, say, the books simultaneously issued by Heinrich Gran and Thomas Anshelm at Hagenau, to see how wide a gulf had opened between the two worlds of learning. At this time, Anshelm, Froben, and others introduced into Germany the Greek founts of the Aldine school; but all the presses, old and new alike, were soon flooded and choked by the overwhelming tide of the pamphleteers of the Reformation; and its ebb left as it were a new world in which all the ancient landmarks were lost.

Greek
printing in
France.
Paris.

In France, Greek printing was even later to arrive than in Germany. At Paris the first book containing Greek letters seems to be the 1494 edition of the *Cornu copiae* of Perottus, printed by Gering and Rembolt. The type, which is shown in fig. 36 from the second edition of 1496, is a very delicate venetian, cast on the usual 'commentary' body (between pica and small pica) of the smaller roman types in Italy, and exaggeratedly 'cutting-out' in appearance from the

fact that hardly any use has been made of the file (doubtless on account of the smallness and fineness of the letters), with astonishing results ;

ἰκτὺ μῖνος ἰπὲρ σεντὶρ ἔτ' & ἀδερσάρῳ γραμῖος φερὶρ ἔτ'. Homerus: ?ωμᾶ Δεῖοι πρὸ τῶν παρὰ καὶ μὲν βῆλ' ἄν
τὰρ εὖ τ' ἐτὰ δ' ὠκύνει μ' ἀντ' ὅς μ' ἐν τῷ οὐ βόδιος γὰρ ἄλλοις. Primū inquit subligat ei adhibuit: deinde
lora dedit apta bouis agrestis. Quin? εἰς ἡκείων π' ἰχθὺσιν ἐχὼν βόδιος φ' ἰδμεν τὸς πρὸ οὐσ' ἀγ' ἀλ' ἄς
ἵεσσι στάβι μανθ' ἰενες bouis validi mactati sicca tergora. Idē οὖς τῶν ἀγ' ἀλ' ἄς π' ἐρικτ' ἐπ' ὀντ' γ' ὄν' ἐκ
πρὸς ἰδ' εἰ. Sic eorū maxillæ aridis obstripebat tergioribus. Idē τῶν δ' ἐπ' ἰδ' ἄς οὐσ' ἐπ' ὀντ' τῶν πρὸ οὐσ'
μὲν ἀπ' ὅτ' ἐν τῶν ἀπ' ὀρ' ἀλ' ἐν δ' ὀντ' ἀπ' ὀρ' ἐπ' ὀντ' ὅς οὐσ' est his prope famuli tergora sanguinolenta sta-

FIG. 36. PARIS, GERING AND REMBOLT, 1496.

it was probably imported from Venice itself, as it is incredible that such work could be done elsewhere at that period. The type was used again in the Vergil of 1498 and the Perottus of 1500. The Athanasius printed by André Bocard in June 1500, contains a single word in a similar type; and the first edition of the Adagia of Erasmus, printed by Jean Philippe in the same year, has some Greek phrases. Early in 1501 (11 Kal. Mart. 1500) Jean Petit published the De syllabarum quantitate of Quintianus Stoa. The Lyon catalogue of incunables by Mlle Pellechet (No. 538) notes the presence of Greek letters in this book; but I am unable to describe the type, or to say who was the printer. At Lyon, as Lyon. was to be expected from its greater dependence on Italy, Greek appeared earlier, but not much earlier, than at Paris. The Juvenal of Jean Dupré printed in 1490 has blank spaces for the Greek both in the text and the commentary; but Trechsel's edition of Josse Bade's Silvae morales, dated November 1492, contains a small Greek type (fig. 37) resembling very closely those of Arrivabenus and Silber. In the same month Antoine Lambillon finished

abstinuisse plutarchus Aristotelē pbat praecepisse. uerba Plutarchi sunt ἀρίστοτελης δεσμητῆρος καὶ καρδιασ κατὰ κάληψης καὶ τοιούτων τιμῶν. ἀλλὰ ὡς ἔχουσιν οὐ τοῦ τυταγορικῶς χρῆσθαι. Δε τοῖς ἄλλοις. i. Aristoteles auulua: corde: & marina uirica/ atq; id genus quibusdam aliis ab

FIG. 37. LYON, JOH. TRECHSEL, 1492.

his Vergil, with Greek letters in the commentary, to all appearance derived from the type of Ulrich Han, but very rough and curious. There are no accents; a letter like a reversed π is used for both μ and ν (a roman ν being also found in place of the latter); there

is no ς final; the down stroke of τ turns round at the bottom, and υ is pointed: π is open, and θ very small. The edition of Cicero's *Rhetorica*, printed in May 1497 by Jacobinus Suigus and Nicolaus de Benedictis, has a few words in Greek in the commentary, but usually a space is left blank for them. In the *Vergil* of 1499 printed by Jacques Sacon, the Greek passages are set up in a small and very neat Italian type without accentuation (fig. 38).

funt mufæ. Est aut Homæ uerfus ΕΣΤΕΤΕΥΝ ΜΟΛΩΣ
 ΣΑΙΟ ΛΥΜΠΙΑΩΠΑΤΙΧΟΣΑΙ ΥΜΕΙΣΓΑΡΘΕΑ ΕΣΘΕΠΑΡ
 ΡΑ ΤΑΤΕΙΣΕ ΤΕ ΜΑΗΤΑΝΜΕΙΣ ΔΕΚΛΕΟΣ ΟΙΟΝΑΚΟ ΥΜΕΝ
 ΟΥΛΕΤΙΔΑΜΕΝ ΟΙΤΙΝΕΣΗΥΕΜΟΗΣ ΔΑΝΑΟΝ ΚΑΙ ΚΑΙΡΑΝ
 ΟΙΗΣΑΝ. *Quibus arserit ar. aut splenderit: aut amo*

FIG. 38. LYON, JAC. SACON, 1499.

Gilles de
 Gourmont.

The first Greek press in France has been treated with great thoroughness by M. Henri Omont in vol. 18 of the *Mémoires de la Société de l'Histoire de Paris* (1891). It was established in 1507 under very discouraging conditions by François Tissard of Amboise, whose printer was Gilles de Gourmont. On the twelfth of August in that year the first book came out under the title Βίβλος ἡ γνῶμαγυρική, a reprint of part of the Aldine *Theokritos* of 1495/6. This book was followed by three other books in the same year, the *Batrachomachia* on September 18, *Hesiod* on October 28, and *Chrusoloras* on December 1. The type (plate XXII) is essentially a Graeco-Latin of the older style, though certain of its forms and the slope of some of its letters suggest the influence of the Aldine founts. It is cast on an english body, and above each line of letters is a second line of equal height; on the lower half of this are cast the accents, &c. belonging to the letters below, and the upper half prints white. Thus each line of the text occupies a space two english ems in height. It was not till 1512 that Gourmont was able to adopt a more reasonable method, in which, though the accents in the lower-case are probably kerned on the Aldine model, those on the capitals, as can be clearly seen in the facsimile given from the *Γνωμολογία* of Aleander by M. Omont, are cast in one piece with the letters. In 1509 Henri Estienne printed the *Psalterium quintuplex*, in which the Greek sentences which occur are set up in Gourmont's type, without accents. But from about 1515 most of the Paris printers possessed a certain

quantity of Greek type, though in 1517 the *Prouerbiorum Libellus* of Polydore Vergil, published by Jean Petit, has blank spaces left. 'fidelium penuria compositorum.'

In the Low Countries Greek letters appear in the *Dicta Ioannis Sinthen super prima parte Alexandri* printed at Deventer on 9 August 1488, by Richardus Pafraet; and his lead was followed in this, as in most other respects, by his rival at Deventer, Jacobus of Breda, who used Greek type in his edition of Sinthen's gloss on the second part of the *Doctrinale*, published in September 1491. I have not seen either of these books, and am therefore unable to say if the type of the first of these is the same or not as that found in two books printed by Pafraet at a later period; these are undated, but cannot be much, if at all, later than 1500. One of them is *Arator in Actus Apostolorum*; the other, from which plate XXII

Χαίρε φίλιαν πατέρα γλυκὴν φάος ὀρχαυελῶν
 ἐφ' ἰλεῶνι νοσησσε ἐλδομενοῖσι μαλ' ἡμῶν
 σωσθῆς τε μέγας τε θεοὶ δεσὴ γὰρ αὐτοῖ
 οὐδὲ τε καὶ μάλα χαίρε θεοὶ δε τοιοῦτα δοίει
 καὶ πασι ψαῶδων καὶ τοῖ μετῴσισε γενῶνται
 ἀλκίμοι εὐδαί, καὶ δουκλερσ οὐκ ἀπολεῖ τοῖ

Τέλος.

FIG. 39. ANTWERP, THIERRY MARTENS, 1504.

is taken, is entitled *Coniugationes uerborum graecae*, and contains the conjugations in Greek, with their Latin equivalents. The Greek type, english in body, is an extremely good one of its kind, and fairly complete, though the accentuation is wild. In the *Coniugationes* the Greek letters are of two bodies, though with the same face; the preface is printed in small pica gothic, and has Greek of the same body, with kerns; the text is pica, as in plate XXII, and this is the body for which the Greek fount was originally designed. Though the titlepage is simple, like the books of 1488, this adaptation of the Greek letters to two Latin founts, and also the irregular leading of the text, point to a somewhat late period; the Latin types were used by Pafraet and his son from 1488 to 1520 or later, and give no help in fixing the date of these books. Thierry Martens possessed some type in 1501, and in 1504 a Greek epigram (fig. 39) appears

on the titlepage of the panegyric on the Archduke Philip by Erasmus; the fount is a Venetian 'commentary' of the Pincian style, with no breathings and very few accents. Not until 1516 did Martens produce a book wholly in Greek, the date 1513 in his edition of Aristotle's Ethics being a misprint for 1523.

pain.

To Spain belongs the honour of having produced as her first Greek type what is undoubtedly the finest Greek fount ever cut, and the only one of which it can be affirmed with certainty that it is based on the writing of a particular manuscript. It was designed for use in the New Testament of the Polyglott Bible of Cardinal Ximenez, and appeared in its earliest state in the text of that volume, which is dated 10 January 1514. At this time the type had no breathings, and no accent except the acute; but in the vocabulary to the New Testament, the Chrusoloras dated 10 April 1514, and the Mousaios, it is furnished with a complete set of accents, though it never possessed any capitals of its own except a Π. The reason assigned in his preface by the printer, Arnaldo Guillen de Brocar, for the defective state of the type is that it showed more respect to the original language to print it after the fashion employed by the ancient Hellenes. We may believe as much of this ingenious excuse as we wish; it seems however to be beyond dispute that the type was cut on the model of the writing in the 'archetypha tantae uetustatis, ut fidem eis abrogare nefas uideatur,' sent to Cardinal Ximenez by Leo X from the Vatican Library. The fount, between english and two-line brevier in body, was designed with a very large face, and no room was left for the higher accents, such as a breathing with circumflex; it was therefore necessary, when it was resolved to complete the case by adding the accents, to kern these, as can be seen in the page from the Chrusoloras reproduced in plate XXIV. The Greek type of the Old Testament (which was printed later) is a small and poor fount, resembling the third Aldine; the reason for its use doubtless was, that it is printed in alternate lines with a Latin version, and has only a small portion of each page reserved to it; hence the use of a small type was a sine qua non. According to the printer, in the afore-mentioned preface, the Greek of the Old Testament is merely a translation, and therefore not worthy of his fine special type.

After Aldus the types (based without doubt directly on his own)

which most influenced the history of Greek printing, were those cut by Claude Garamond in 1541-1544 at the cost of Francis I. ^{The French Royal types.} These founts, three in number, were used by the printers of the Estienne family, and are still in existence. Their history is given by Bernard in his work entitled *Les Estienne*; he also gives at the end specimens, printed from the actual types of the three 'royal' founts. They are doubly important, not only as being the models of all the best types for two centuries, but because they are actually extant, and we know the exact number of sorts of which they originally consisted. In a book which Robert Estienne printed at Geneva in 1554 with the title of *Alphabetum Graecum* he has given a complete list of the sorts belonging to these founts, the matrices of which he carried away with him from Paris in 1550. The largest of the three is double pica, and contains the following sorts: Capitals, 25; single lower-case letters, 38; ligatures and abbreviations 367, of which σ alone has 82. The second fount is great primer; and the list of '*compendia literarum et nexus partim breuitatis, partim elegantiae causa reperti*' contains 347 sorts, besides the '*compendia quarundam artium propria*,' of which there are about 40. The smallest of the three founts, '*characteres regii secundo loco scalpti, quibus nouum D. N. Iesu Christi testamentum minore forma excudit R. Stephanus*,' has 26 capitals, 32 lower-case letters, and the ligatures, '*scribendi ratio, qua elegantius scribentes utuntur*,' number 318. This last, a pica type, is extremely minute; indeed all the types have a face very small in proportion to their body; this is due to the luxuriance of the abbreviations, which are not kerned, and therefore occupy much space. Besides the letters given above, there are to be added the stops, breathings, accents, iota subscript, and various signs of abbreviation, &c., all of which are kerned in the Aldine manner, even the iota subscript; these number 17 to 20 in each case. In 1691 an inventory was made of the number of matrices belonging to these types; there were 497 of the double pica, 614 of the great primer, and 481 of the pica fount.

All the best of the later types, down to the eighteenth century, ^{Later Greek types.} are imitations, more or less close, of the 'royal founts' of Francis I. Such is the Greek type of Sir Henry Savile, used for the printing of the great Eton Chrysostom of 1610-1613, which still remains the greatest monument of Greek printing in England. The types

given by Dr Fell to the University of Oxford towards the end of the same century, though derived immediately from Holland, are, so far as their form goes, based entirely on the French letters, but the existing matrices show that great changes had taken place since Garamond's time. Even as early as 1632, when the Savile type was lent to the University of Cambridge for the purpose of printing the New Testament in Greek, several of the abbreviations were not used; but the real movement in the direction of greater simplicity is probably due to the Dutch type-founders. The Fell matrices, as shown by Mr Horace Hart in his newly issued volume on the old types of the Clarendon Press, prove that two simultaneous alterations had been made; a complete set of accented sorts cast in a single piece had been introduced, in addition to the kerned letters inherited from the sixteenth century, which were retained in the larger types, though the smaller sizes, such as long primer, are without them altogether. At the same time the number of abbreviations was largely reduced; so that the numbers of the Fell matrices agree fairly well with those of the French royal types at almost exactly the same date, though the cases were made up quite differently. In Dr Fell's types, the matrices of the great primer number 456, and of the pica 513; of the augustine, or english, 353, and of the long primer 354. According to Johnson and Hansard, the older Greek cases contained 750 sorts, of which, says Johnson, 'almost 300 are the same, and have no other difference than that of being kerned on their hind side; for there has been Greek with capitals kerned on both sides.' Mr Talbot Reed, in his *History of the old English Letter Foundries*, mentions that the cases of Fournier's Greek type contained 776 sorts, which agrees fairly well with the preceding statement. It is clear that no later type, however complex, comes anywhere near the 1200-1300 sorts of the Venice fount of 1486. In 1700 the Grover Foundry had 350 matrices of english, 380 of pica, and 426 of bavier Greek, which corresponds closely with the numbers of the Fell types.

Mr Talbot Reed does not give the number of matrices in Caslon's Greek types; but the extremely ugly Baskerville great primer (Reed, fig. 71), cast for the Oxford Press in 1763, had, according to the inventory of 1794, only 157 matrices, as against the 493 sorts of the older type of the same body then in use; and the existing

matrices do not reach even this number. The cause of this was, first, the limiting of tied letters and abbreviations to a dozen or so; secondly, that only the simpler and thinner vowel-sorts were cast in one piece with the accents, the majority being worked separately by means of kerns in the old fashion. The combination of these two features explains the very small number of sorts, in spite of the existence among them of a few double forms, such as the τ . But the Baskerville fount was probably the last in which a complete, or fairly complete, set of accented vowel sorts was not included. The exact details concerning it may be seen in Mr Hart's book already referred to.

The modern style, or Porsonian type, which is in fact only a modification of Baskerville's in the direction of legibility and simplicity, came into use at the beginning of the nineteenth century, and gradually superseded the French and Dutch founts in use up to that time. Decorous but dull, its monotonous regularity is certainly preferable to the abominable modern continental or Didot types, but as compared with the older types of the Estienne tradition it has lost their grace and variety, while happily free from the appalling complexity which made them so difficult to read; from the compositor's point of view, it is certainly an advance on any previous type, in the comparatively small size of its case, together with the abolition of kerns except in specially complex sorts, such as ϕ , and the absence of elaborate artifices for saving space and gaining variety. It is in fact heartrending to picture the compositor of 1600, with a case of 450 plain and 300 kerned sorts, and having to set at least one and often two kerns in every word he composed. In the works of Johnson and Hansard, which appeared in 1824 and 1825 respectively, the plan of a Greek case is almost identical with that given in 1890 by Mr Jacobi on page 110 of his handbook on printing; the main difference is the disappearance from the later case of the abbreviations for α and ϵ , and the secondary forms of ρ , ζ , κ , π and τ , though others, now entirely disused, are retained. The upper and lower cases together contain at present, exclusive of stops, hyphen, quadrats and spaces, 192 sorts, divided thus: Capitals, 24; simple lower-case letters, including second forms of β , θ and ρ , seldom or never used, 30; seven vowels, each combined with fourteen accents, breathings and diaeresis, 98 sorts in all; 15 of α and its combinations, now quite

out of date ; 14 separate accents, &c., arranged for kerning ; six kernered vowels, to be used with the accents, why is not apparent, seeing that all the combinations are already represented in the 98 vowel-forms ; three letters with iota subscript, α , η , ϕ , which are made both with and without kerns, these letters not being cast in combination with accents in a single piece ; lastly, an obsolete abbreviation for $\kappa\alpha\iota$, and the stigma, used for the numeral 6. The reason why a few abbreviations were retained when the great mass of them was discarded, may be given in the words of Johnson : 'Greek at present is cast almost everywhere without ligatures or abbreviations, unless where founders will not forbear thrusting them in ; or where they have express orders to cast them. Some few ligatures, however, not only grace Greek letter, but are also profitable to a compositor who knows how to use them properly.' Yet the same writer professes himself unable to understand the motives which induced the earliest printers to use so many ligatures, and suggests that it was due to the business enterprise of the type-founder. The words of Robert Estienne quoted above show that his reasons for approving the large number of ligatures in use in 1550 were identical with those which induced Johnson to acquiesce in the retention of a few in 1824.

LIST OF ILLUSTRATIONS

FIGURES.

- 1 (p. 25). Mainz, Peter Schöffer and Joh. Fust, 1465. Cicero, de officiis, paradoxa. F^o. British Museum [IB. 110]. Leaf 81^a, lines 1 and 2. Size of original, 10 × 89 mm.
- 2 (p. 28). Subiaco, Sweinheim and Pannartz, 29 Oct. 1465. Lactantius, opera. F^o. British Museum [IB. 17007]. Leaf 167^b, lines 18 to 27. Size of original, 59.5 × 130 mm.
- 3 (p. 28). Rome, Sweinheim and Pannartz, 1468. Lactantius, opera. F^o. British Museum [IB. 17103]. Leaf 200^b, lines 9 to 17. Size of original, 51 × 130 mm.
- 4 (p. 28). Rome, Joh. Phil. de Lignamine, August 1470. Suetonius, uitae duodecim Caesarum. F^o. British Museum [IB. 17366]. Leaf 74^b, lines 7 to 15. Size of original, 56 × 129 mm.
- 5 (p. 29). Rome, Ulrich Han and Simone Chardella, 1471. Tortellius, orthographia. F^o. British Museum [167. g. 4]. Leaf 3^{aa}, lines 17, 18. Size of original, 10 × 67.5 mm.
- 6 (p. 30). Rome, Ulrich Han and Simon Chardella, 12 Feb. 1474. Lactantius, opera. F^o. British Museum [IB. 17303], leaf 211^b, lines 8 to 13. Size of original, 45 × 112 mm.
- 7 (p. 32). Venice, Wendelin of Speier, 1472. Lactantius, opera. F^o. British Museum [C. 13. c. 5]. Leaf 162^b, lines 12 to 23. Size of original, 65 × 124 mm.
- 8 (p. 32). Venice, Nicolas Jenson, 1472. Aulus Gellius, noctes atticae. F^o. British Museum [IB. 19661]. Leaf 160^b, lines 13 to 29. Size of original, 95 × 136 mm.
- 9 (p. 35). Venice, Adam of Ammergau, 1471. Lactantius, opera. F^o. British Museum [C. 13. c. 4]. Leaf 176^b, lines 4 to 12. Size of original, 44 × 129 mm.

- 10 (p. 35). Venice, Filippo di Pietro (circa 1475). Georgius Trapezuntius, commentarii in Philippicas Ciceronis. 4^o. British Museum [IA. 20148]. Leaf 4^b, last six lines. Size of original, 33 × 78 mm.
- 11 (p. 37). Venice, Jacques Le Rouge, 24 April 1475. Iuuenalis saturae cum commentario Domitii Calderini. 4^o. British Museum [C. 16. i. 7]. Leaf 31 recto, lines 44 to 46 of the commentary. Size of original, 12 × 143 mm.
- 12 (p. 37). Venice, Ant. Miscomini, 22 Jan. 1476. Hieronymus, epistulae. F^o. British Museum [C. 14. d. 10]. Sig. h1^{ba}, lines 45 to 67. Size of original, 92 × 78 mm.
- 13 (p. 37). Venice, Thomas de Blavis, 1476. Cicero, epistulae ad familiares. F^o. Bodleian [Auct. N. ii. 14]. Sig. o2^b, lines 17 to 24. Size of original, 35 × 120 mm.
- 14 (p. 41). Milano (Ant. Zarotus, c. 1471-72). Cicero, epistulae ad familiares. F^o. British Museum [167. f. 8]. Leaf 124^a, lines 8 to 14. Size of original, 40 × 129 mm.
- 15 (p. 41). (Milano, about 1475.) Priscianus, opera. F^o. (Hain 13354.) British Museum [IB. 26268]. Leaf 126^a, lines 24 to 33. Size of original, 54 × 144 mm.
- 16 (p. 41). Milano, Domenico da Vespolate, 12 Dec. 1476. Papias, uocabularium. F^o. British Museum [IC. 26285]. Leaf 33^{bb}, lines 7 to 16. Size of original, 54 × 76 mm.
- 17 (p. 43). Padova, Barth. de Valdezoccho, 14 Jan. 1474. Omnibonus Leonicens, libellus grammaticae. 4^o. British Museum [C. 2. a. 4]. Leaf 91^a, lines 17 to 21. Size of original, 28 × 76 mm.
- 18 (p. 44). Place and printer unknown (Padova, about 1476?). Perottus, de generibus metrorum. 4^o. British Museum [IA. 36863]. Leaf 7^a, last twelve lines. Size of original, 68 × 98 mm.
- 19 (p. 44). Ferrara, André Beaufort (about 1474). Guarinus, de ordine docendi et studendi. 4^o. Bodleian [Auct. 2Q. v. 65]. Greek passage from leaf 22^b. Size of original, 34 × 82 mm.
- 20 (p. 45). Treviso, Gerardus Lisa, 1476. Perottus, rudimenta grammaticae. 4^o. British Museum [C. 2. a. 5]. Leaf 122^a, lines 7 to 11. Size of original, 30 × 83 mm.
- 21 (p. 47). Place and printer unknown, about 1471? Galeottus Martius, liber de homine. F^o. British Museum [C. 13. b. 19]. Alphabet, from a tracing.

- 22 (p. 64). Milano (Bonus Accursius), 20 Sept. 1481. Psalterium graeco-latinum. British Museum [C. 9. c. 9]. Small Greek type used in the preface. From a tracing.
- 23 (p. 126). Venice, Andreas de Paltascichis, 1477. Aulus Gellius, noctes atticae. F^o. British Museum [IB. 20609]. Sig. x7^b, lines 20 to 25. Size of original, 33 × 122 mm.
- 24 (p. 128). Venice, Bernardino de' Cuori, and Simone da Lovere, 13 August 1489. Aulus Gellius, noctes atticae. F^o. British Museum [IB. 23418]. Leaf 85 (numbered lxxv, sig. m 3)^b, lines 2 to 14. Size of original, 68 × 153 mm.
- 25 (p. 128). Venice, Christophorus de Quietis and Martinus de Lazaronibus, 17 July 1493. Aulus Gellius, noctes atticae. F^o. British Museum [167. e. 15]. Leaf 26 (numbered xvi, sig. c4)^b, lines 19 to 31. Size of original, 70 × 102 mm.
- 26 (p. 129). Venice, Simone Bevilacqua, 4 April 1497. Lactantius, opera. F^o. British Museum [IB. 23967]. Sig. p 6^a, lines 35 to 40. Only part of line 40 is given here. Size of original, 33 × 105 mm.
- 27 (p. 130). Venice (Giovanni Rosso), 29 June 1492. Macrobius, saturnalia. F^o. British Museum [IB. 23152]. Leaf 58 (numbered LVII, sig. k 2)^b, lines 36 to 46. Size of original, 45 × 76 mm.
- 28 (p. 132). Bologna, Benedictus Hectoris (Faelli), 19 Oct. 1498. Plinius iunior, epistulae. 4^o. British Museum [IA. 29087]. Sig. q 6^a, lines 16 to 28. Size of original, 71 × 92 mm.
- 29 (p. 132). Brescia, Boninus de Boninis, 6 June 1483. Macrobius, saturnalia. F^o. British Museum [IB. 31072]. Sig. x 1^a, last nine lines. Size of original, 45 × 93 mm.
- 30 (p. 132). Brescia, Bernardinus Misinta, 10 August 1499 (purports to be printed 'Florentiae, opera et impensa Leonardi de Arigis de Gesoriaco'). Politianus, opera. British Museum [IB. 31268]. Sig. L 7^b, lines 1 to 12. Size of original, 61 × 108 mm.
- 31 (p. 134). Florence, Antonio Miscomini, 19 Sept. 1489. Politianus, miscellaneorum centuria prima. F^o. British Museum [G. 8974]. Sig. m 2^b, lower half. Size of original, 93 × 97 mm.
- 32 (p. 135). Rome, Eucharius Silber, 24 Nov. 1492. Herm. Barbarus, castigationes pliniana. F^o. British Museum [IB. 18955]. Sig. bb 5^b, lines 14 to 17. Size of original, 21 × 120 mm.

- 33 (p. 137). (Basel, Joh. von Amorbach, c. 1486.) Franc. Philelphus, epistulae. (Hain *12929.) 4°. British Museum [IA. 37436]. Sig. L 8^b, lines 1 to 7. Size of original, 29 × 96 mm.
- 34 (p. 138). Nürnberg, Anton Koberger, 1492. Opera Vergili cum commentariis. F°. British Museum [IB. 7441]. Leaf 241 (numbered CCXXXIII, sig. D 3)^a, lines 46 to 52 of the commentary. Size of original, 26 × 60 mm.
- 35 (p. 139). Erfurt, Wolfgang Schenck, 1500. Ein Büchlein darinnen die Titel aller Stände begriffen sind. 4°. British Museum [IA. 12665]. Leaf 3^a, lower half. Size of original, 70 × 67 mm.
- 36 (p. 141). Paris, Ulrich Gering and Berthold Rembolt, 23 April 1496. Perottus, cornu copiae. F°. From a copy in the writer's possession. Sig. c 2^b, lines 13 to 18. Size of original, 29 × 156 mm.
- 37 (p. 141). Lyon, Joh. Trechsel, 14 Nov. 1492. Iodocus Badius Ascensius, Siluae morales. 4°. British Museum [IB. 41900]. Leaf 128 (numbered CXXII, sig. r 2)^b, lines 23 to 26. Size of original, 13.5 × 114 mm.
- 38 (p. 142). Lyon, Jacques Sacon, 9 Dec. 1499. Opera Vergili cum commentariis. F°. British Museum [IB. 42176]. Leaf 263 (numbered CCLVII, sig. H 1)^a, lines 3 to 7 of the commentary. Size of original, 20 × 77 mm.
- 39 (p. 143). Antwerp, Thierry Martens, 1504. Erasmus, ad illustrissimum principem Philippum archiducem panegyricus. 4°. British Museum [9930. cc. 2]. Six lines of Greek from the titlepage. Size of original, 32 × 88 mm.

PLATES.

- I a. Milano, Dionysius Paravisinus, 30 Jan. 1476. Konst. Laskaris, ἐπιτομή τῶν ὀκτῶ τοῦ λόγου μερῶν καὶ ἄλλων τινῶν ἀναγκαίων. 4°. British Museum [IA. 26273]. Leaf 47^b. Size of original, 145 × 97 mm.
- I b. From the same book as the preceding, but taken from the copy marked C. 8. h. 3. Leaf 5^a, first four lines. Size of original, 24 × 97 mm.
- II. (Milano, Bonus Accursius, c. 1479-1480.) Theokritos and Hesiod. 4°. British Museum [G. 8504]. Sig. δ 3^b. Size of original, 169 × 118 mm.

- III. Florence, Bartolommeo di Libri, 1488. Homer. F^o. British Museum [IB. 27273]. Leaf 6 (sig. A 4)^a of the Iliad, line 7 to end of page. Size of original, 201 × 105 mm.
- IV. Milano, Heinrich Scinzenzeler and Bastiano da Pontremolo, 24 Jan. 1493. Isokrates. British Museum [IB. 26855]. Sig. D 6^a. Size of original, 193 × 120 mm.
- V a. Venice, Alexandros of Krete, 15 Nov. 1486. Psalter. 4^o. British Museum [IA. 23026]. Sig. δ 3^a. Size of original (with the signature), 160 × 98 mm.
- V b. Venice, Laonikos of Krete, 22 April 1486. Batrachomuomachia. 4^o. British Museum [IA. 23022]. First three lines of the book. Size of original, 17 × 86 mm.
- VI. Florence, Lorenzo di Francesco di Alopa, 1496. Apollonios Rhodios, Argonautika. 4^o. British Museum [C. 8. h. 2]. Sig. ζ 8^a. Size of original, 177 × 117 mm.
- VII. (Brescia, Thomas Ferrandus, c. 1474?) Batrachomuomachia. 4^o. Leaf 13^a. Size of original, 140 × 107 mm.
- VIII. (Vicenza, Giovanni da Reno? c. 1475-76.) Chrusoloras, erotemata. 4^o. British Museum [IA. 31762]. Leaf 9^b. Size of original, 141 × 106 mm.
- IX. (Parma, perhaps Steph. Corallus, c. 1481?) Chrusoloras, erotemata. 4^o. From a copy belonging to Mr. R. C. Christie. Sig. b 1^b. Size of original, 141 × 100 mm.
- X. Vicenza, Dionysius Bertoehus, 10 Nov. 1483. Crastonus, Lexicon. F^o. British Museum [IB. 31872]. Sig. ρ 3^b, lines 1 to 40. Size of original, 189 × 123 mm.
- XI. Venice, Peregrino Pasquale, 5 Feb. 1484. Chrusoloras, erotemata. 4^o. British Museum [IA. 22223]. Sig. f 2^b. Size of original, 143 × 97 mm.
- XII. Vicenza, Leonardus Achates (c. 1489-90). Konst. Laskaris, περὶ ὀνομάτων καὶ ῥημάτων βιβλίον τρίτον. 4^o. British Museum [IA. 31721]. Sig. b 2^a. Size of original (with signature), 177 × 110 mm.
- XIII a. Vicenza, Leonardus Achates, 14 June 1489. Konst. Laskaris, compendium octo partium orationis. 4^o. British Museum [IA. 31721]. Leaf 2^{aa}, lines 1 to 7. Size of original, 39 × 59 mm.
- XIII b. Vicenza, Leon. Achates, 1 Sept. 1490. Chrusoloras, erotemata. 4^o. British Museum [IA. 31727]. Sig. b 1^a. Wormholes have injured letters in lines 12, 24, 27, 29, 30. Size of original, 132 × 93 mm.

- XIV. Venice, Aldus Manutius, Feb.-March 1494 (i. e. 1495). Konst. Laskaris, erotemata. 4^o. British Museum [C. 2. a. 1]. Sig. B 1^a. Size of original (with signature), 157 × 102 mm.
- XV. Venice, Aldus Manutius (1495). Mousaios. 4^o. British Museum [G. 8394]. Leaf 1^a of the Greek text. The alteration of the accent on παλαιότατον, line 2, is made by hand. Size of original (with signature), 159 × 102.5 mm.
- XVI. Venice, Aldus Manutius, March-April 1499. Collection of Greek letters. 4^o. British Museum [IA. 24479]. Vol. 2, sig. μ 4^a. Size of original (with signature), 151 × 100 mm.
- XVII. Venice, Aldus Manutius, July 1499. Dioskorides, etc. F^o. British Museum [IB. 24488]. Sig. α 5^{ab} (of the Scholia to Nikandros), lines 1 to 43. Size of original, 179 × 60 mm.
- XVIII. Reggio d'Emilia, Dionysius Bertochus, 1497. Aesop. 4^o. British Museum [IA. 34064]. Sig. δ 1^b. Size of original, 140 × 102 mm.
- XIX. Venice, Joh. Bissolus and Bened. Mangius, 18 June 1498. Phalaris. 4^o. British Museum [G. 8255]. Sig. εε 1^b. Size of original, 158 × 97 mm.
- XX a. Milano, Joh. Bissolus and Bened. Mangius, 15 Nov. 1499. Soudas, lexicon. F^o. British Museum [IB. 26913]. First page. Size of original, 141 × 152 mm.
- XX b. From the same book as the preceding. Sig. ς 2^a, lines 24 to 31. Size of original, 43 × 150 mm.
- XXI. Venice, Zacharias Kallierges, 24 July 1499. Ετυμολογικὸν μέγα. F^o. British Museum [IC. 24733]. Sig. BB 4^{aa}, lines 1 to 28. Size of original, 169 × 87 mm.
- XXII. (Deventer, Richardus Pafraet, c. 1500?) Coniugationes uerborum graecae. 4^o. British Museum [IA. 47796]. Sig. C 4^a. Size of original, 144 × 85 mm.
- XXIII. Paris, Gilles de Gourmont, 18 Sept. 1507. Batrachomouchia. 4^o. British Museum [995. e. 8]. Sig. β 2^a. Size of original (including signature), 152 × 93 mm.
- XXIV. Alcala de Henares, Arnaldo Guillen de Brocar, 10 April 1514. Ἑρωτήματα τοῦ Χρυσολωρᾶ. 4^o. British Museum [C. 20. b. 26]. Sig. P 1^a. Size of original, 162 × 109 mm.

PLATES

ANALYSES

THESE are of two kinds. In the one an attempt has been made to enumerate all the sorts of the fount, whether they occur on the page reproduced here or not. In the other only those found on the single page are given. The following examples explain the use of the numbers in the square brackets following certain letters:—

- α [i. 2, ii. 4] means: This type contains two sorts of α; one occurs in line 2, the other in line 4, of the facsimile.
 α [i. 2, ii] means the same as the last, but the second form is not found in the facsimile.
 α [i, ii]. Two forms of α exist in the fount, but neither occurs in the facsimile.

PLATE I.

Laskaris, Milano, 1476.

[Whole fount.]

CAPITALS.

Α' Α' Α' Α' Α' Β Γ Δ Ε' Ε' Ε' Ε' Ζ
 Η' Η' Η' Η' Η' Θ Ι' Ι' Ι' Ι' Ι'
 Κ Λ Μ Ν Ξ Ο' Ο' Ο' Ο' Ο'
 Π Ρ' Ρ Σ Τ Υ' Υ Υ' Φ Χ Ψ Ω
 Ω Ω' Ω' Ω' Ω' Ω' Ω' Ω'

LOWER-CASE.

α [i. 4, ii. 7, iii. 12] ᾱ [i. 2, ii] ᾱ ᾱ [i. 13, ii] ᾱ [i. 4, ii] ᾱ [i. ii] ᾱ ᾱ ᾱ [i. ii]
 ᾱ ᾱ ᾱ ᾱ. α [2] α [3] α [4] α [5]
 α [5] α [5] α [5] α [5]. αυ αυ αυ αυ αυ.
 β [7].
 γ [i. 1, ii. 15, iii. 25].
 δ [i. 3, ii] δ.
 ε [i. 2, ii] ε [i. 7, ii] ε ε [3] ε [5]
 ε [i, ii? 8] ε ε ε [1] ε [24] ε [6]
 ε [6] ε [6] ε [2] ε [2] ε [2] ε [2]. επ [10].
 ευ [15] ευ ευ [1] ευ ευ ευ ευ ευ.
 ζ [15].
 η [2] η η η [1] η [i. 25, ii] η [6] η [19]
 η η η η [14] η [17] η η η η [12].
 θ [i. 2, ii] θ'.

ι [1] ι [8] ι [15] ι [1] ι [1] ι [1].
 κ [i. 1, ii].
 λ [1] λ'.
 μ [6].
 ν [1].
 ξ [2].
 ο [1] ό [1] ό [1] ό [7] ό [3] ό ό [4] ό.
 π [i. 1, ii. 4] π π π (?).
 ρ [1] ρ ρ.
 σ [1] σ [5] σθ σπ [15] σσ [6] στ [7].
 τ [i. 2, ii. 2, iii. 10] τ τ τ [13].
 υ [6] ύ [14] ύ [17] ύ ύ [6] ύ υ υ υ
 υ ύ υ υ [14] υ ύ υ υ.
 φ [8] φ'.
 χ [7].
 ψ.
 ω [i. 1, ii. 10] ώ ώ ώ [25] ώ [7]
 ώ [i. 1, ii. 1] ώ ώ [i, ii] ώ ώ φ φ.

STOPS, ETC.

Period [1], comma [7], long comma, rough breathing, smooth breathing [2], hyphen [i. 11, ii. 13]. Ten special signs used only on leaf 4^a.

λήγῃ· οἶον ποιῶ ποιήσω· ἄρῳ ἄρήσω· οἰκῶ οἰ-
 κήσω· τηρῶ τηρήσω· ἀθλῶ ἀθλήσω· ἐξαίρῃται
 τὸ ἀρκῶ ἀρκέσω· γῃκῶ γῃκέσω· αἰδῶ αἰδέσω
 αἰγῶ αἰγέσω· ὅθεν καὶ ἐπαίρω ἐπαίρῃσω· παρὰ
 δὲ τοῖς παλαιοῖς αἰγῇσω καὶ ἐπαίγῃσω· ὅθεν καὶ
 Ὅμηρος μῦθον ἐπαίγῃσαντες ὀδυσῆος βῆοιο· ὅτε
 δὲ ὁ ἐμεγῶς βραχὺ παραλήγῃ, τότε ὁ μέλλων
 ποτὲ μὲν τὸ η' ἐχθ' οἶον φιλῶ φιλήσω· γοῶ γοήσω
 ποτὲ δὲ τὸ ε'· οἶον τε λῶ τελέσω· καλῶ καλέσω·
 ὀλῶ ὀλέσω· ἐγῴοι δὲ ἀμφοτέρω ἐχουσίη· οἶον φο-
 ρῶ φορήσω καὶ φορέσω· πομῶ πομήσω καὶ πο-
 γέσω· φρογῶ φρογήσω καὶ φρογέσω· τῶν δὲ πλ-
 ραλήγονσαν τοῦ μέλλοντος φυλάττει ὁ παρακῆ-
 μένος καὶ ὑπὲρ σωτέλικος καὶ ἀόριτος· ἐν πάσῃ
 συζυγίᾳ πρῖσσω μένῃ· Διάτερα·

Ἡ δ' ἀτέρα διὰ τοῦ αω προφερομένη, ποτὲ μὲν
 τὸ α ποτὲ δὲ τὸ η ἐν τῇ παραληγούσῃ τοῦ μέλ-
 λοντος ἐχθ' οὕτω· τὰ δ' εω καθαρὸν προηγον-
 μένον ε' ἢ ἰ διὰ τοῦ ασω τὸν μέλλοντα ποιοῦσιν
 οἶον ἐῶ εἶσω· θεῶ θεάσω· ἀπιῶ ἀπιάσω· ἐρυθρι-
 ῶ ἐρυθριάσω· ἀλλοιῶ δὲ ἀλλοιήσω ἰωνικόν·
 ἔτι τὰ παραληγόμενα τῶ ο· οἶον ἀκροῶ ἀκρο-
 άσω· ἐξαίρῃται τὸ βοῶ βοήσω· γοῶ γοήσω· ἀ-
 λοῶ ἀλοήσω καὶ ἀλοάσω· ἔτι τὰ δ' ε ρω ὑπὲρ
 μορσύλλαβα μὲ προηγούμενον συμφώνον, οἶον

ΕΠΙΤΟΜΗ ΤΩΝ ὀκτῶ τοῦ λόγου
 ΜΕΡΩΝ ΚΑΙ ἄλλων τινῶν ἀναγκαι-
 ων· ΣΥΝΤΕΘΕΪΣΑ ΠΑΡΑ ΚΩΝΣΤΑΝ
 ΤΙΝΟΥ ΛΑΣΚΑΡΕΩΣ ΤΟΥ ΒΥΖΑΝΤΙΟΥ

PLATE II.

Theokritos, Milano, c. 1479-1480.

[Single page only.]

CAPITALS.

A[3] 'A[4] *A[27] B[30] Δ[7]
'E[29] Θ[26] K[8] Μ[12] 'O[6]
'O[15] Π[1] Τ[5] 'Ω[17].

LOWER-CASE.

α[i. 1, ii. 11] ᾱ[i. 1, ii. 5] ᾰ[5]
ᾱ[i. 9, ii. 23] ᾱ[1] ᾱ[1] 'ᾱ[16]
αι[1] αἰ[11] αἰ[9] αἰ[10] αἰ[29]
αὐ[5].
β[11].
γ[2].
δ[i. 2, ii. 2] δ[1].
ε[1] ἐ[6] ἐ[2] ἐ[6] ἔ[1] ἔ[10]
ει[11] εἰ[15] εἰ[8] εἰ[11] εἰ[1]
εὐ[3] εὐ[19] εὐ[6].
ζ[i. 11, ii. 12].
η[2] ἥ[3] ἥ[12] ἥ[24] ἥ[3] ἥ[25]
ἥ[12].
θ[1].
ι[2] ἰ[29] ἰ[2] ι[2] ἰ[15] ι[i. 2,
ii. 5] ἰ[11].

κ[i. 1, ii. 27] κ[30].
λ[1] λ[3] λλ[5].
μ[i. 3, ii. 5].
ν[i. 1, ii. 2].
Ξ[i. 1, ii. 6].
ο[1] ὀ[2] ό[1] ὀ[i. 1, ii. 2] ὀ[6]
ὀ[5] ὀ[6].
π[i. 1, ii. 3].
ρ[1].
σ[i. 1, ii. 8] ς[2] σθ[13] σσ[5] στ[6].
τ[i. 1, ii. 2, iii. 17] τ[13].
υ[1] ὕ[1] ύ[8] ὕ[3] ὕ[5] ὕν[25].
φ[i. 8, ii. 14].
χ[i. 1, ii. 7].
ψ[2].
ω[i. 1, ii. 3, iii. 10] ὰ[i. 11, ii. 11]
ῶ[i. 4, ii. 6] ῶ[8].

STOPS.

Comma [1], period [2]. (The ; is also used.)

Πᾶς δ' ὑπὸ κόλπου χῆρας ἔχων, πένθιμ' αὖζεται ἀθρή
 ἄρβυρος. οὐδέ κε μ' ἰὸν ἀποτρίψας τιρὶ δαΐν.
 Ἀλλ' ὧθ' ὅς μιν θῆται. ἀπωτέρω ἢ Γόμφου κρήμας.
 Αὐτῷ μοί τι γέροιτο. θεοὶ τιμῶσιν ἀοιδούς
 ὅς τις δέ κε μ' αὖθις ἀκούσαι ἄλλου. πάντεσσι γ' ὁμηρος.
 Οὗτος ἀοιδῶν λῶτος, ὅς ἐξ ἐμῶ ὀίσεται οὐδ' ἐμ
 Δαιμόριοι, τί δέ κέρδος ὁ μυρίος ἐρδοθι χρυσός
 Κέμερος. οὐχ ὧδ' ἐπ' αὖθις φρομέουσιν ὄρασις.
 Ἀλλὰ τὸ μὲν ψυχᾶ, τόδ' ἐκ, καί τιμι δοῦμαι ἀοιδῶν.
 Πολλοὺς δ' εὖ ἔρχει παῶν, πολλοὺς δ' ἐκ' ἄλλω
 ἀνθρώπων. αἶψά δ' ἐθεοῖς ἐπιβώμια ρέζω.
 Μὴ δ' ἐξ ἡρόδοτον κακὸν ἔμμεναι. ἀλλὰ τραπέζῃ
 ἠδ' ἰλίσσῃ τ' ἀποπέμψαι, ἔσθ' ἐθέλητι ρέεσθαι
 Μουσάων δ' ἐμὰ λίσσῃ τίς μιν ἱερούς ὑποφῆτας.
 Ὀφρακε κῆρ αἶδ' ἀο κεκρυμμένος ἰοθλός ἀκούσης,
 Μὴ δ' ἀκλῆς μύρμαι ἐπὶ ψυχροῦ ἀχέροντος,
 ὥς τις μακῆλν τε τυλωμένος ἐρδοθι χῆρας.
 Ἀφ' ἡμ' ἐκ πατέρων περὶν ἀκτῆμονα κλαίω.
 Πολλοὶ ἐμ' ἀντιόχοιο δόμοις καὶ ἀμακτος ἀλώα,
 Ἄρμαλιν ἐμ' ἡμνον ἐμετρήσαντο περέσσαι.
 Πολλοὶ δ' ἐσκοπάδ' εἰσι ἐλαυνόμενοι ποτὶ σακὲν
 ἠόσχοι σὺν κεραοῖσιν ἐμυκῆσαντο βόεσσιν.
 Ἡυρία δ' ἐμ' πεδίοις κραυγῶν ἐμ' ἡμνῶν ἀσχομ
 Ποιμένες ἐκκρίτ' αὖθις φιλοζήνοισι κλεώμας.
 Ἀλλ' οὐσφιν τῶν ἡδ' ὅς, ἐπὶ γλυκύν ἐξεκέρωσαν
 θυμὸν, ἐσ' ὅρῃσιν σχεδίασιν αὖθις ἀχέροντος.
 Ἀμναστοὶ δ' ἐμ' ἀπολλὰ καὶ ὀλβια τῆμα λιπόμτες.
 Ἀφ' ὅσιν ἐμ' μεκύνει μακροὺς αἰῶνας ἐκέρωτο.
 Ἐμ' ἡμ' ἀφ' ὅς ἀοιδός ὁ κῆπος αἰόλα φωνέων
 Βάρβιτον ἐσ' ἀπολλοῦ ἐμ' ἀνδράσι θῆκ' ὁμοματ' οὖσ

PLATE III.

Homer, Florence, 1488.

[Single page only. * signifies new forms, not found at Milano.]

CAPITALS.

Τ [1] *Ω [31].

LOWER-CASE.

α [1] ᾱ [1] ᾱ [3] ᾱ [2] ᾱ [3]
 *ᾱ [18] ᾱ [12].
 β [i. 1, *ii. 7].
 γ [i. 2, ii. 8, iii. 31].
 δ [i. 1, ii. 8] ḡ [i. 6, *ii. 6].
 ε [1] *ē [4] ē [22] é [1] è [11]
 ě [2] ě [28] ei [1] ei [2] ei [4]
 el [17] el [5] el [14] el [14] ep [2]
 *ετ [8] *ēτ [30] *εῦ [15] *εῦ [28].
 ζ [20].
 η [1] ḥ [7] ḥ [2] ḥ [10] ḥ [5] ḥ [32]
 *ḥν [1] ḥν [21].
 θ [2].
 ι [8] ī [1] *ī [13] l [6] *ī [2] l [22]
 ī [4] ī [26].
 κ [i. 1, *ii. 3].
 λ [1] λ [19].

μ [1] *μὲν [2].
 ν [1].
 *Ξ [6].
 ο [1] ò [6] ó [1] ò [6] ò [7] ò [4]
 ò [25] *οῦ [10].
 π [1] *π [5] ππ [20].
 ρ [1] ρ [16] ρ [22].
 σ [1] ς [1] σθ [2] σπ [24] σσ [9]
 στ [13].
 τ [i. 2, ii. 4, iii. 9] τ [4] *τρ [10].
 υ [3] ú [28] ú [2] *ú [1] ũ [4] ũ [18]
 ũ [23] uv [11] ũv [13] *ũv [18].
 φ [1] φ [28].
 χ [1].
 ψ [6].
 ω [2] ō [1] ō [5] ō [3] ō [6] ō [3].

STOPS, ETC.

Comma [2], period [1], rough breathing [7], smooth breathing [9].

Τὼ δ' ἄτα μὲν βόμῃος προσέφη πῶδας ὠκύνεσσι χιλήνους.

χρήμην σφωίτ' ὀύγε θεὰ ἔπος ἐρυσσάσθαι,

καὶ μάλα τ' ἔθνη μὲν κεχολωμένον ὥς γὰρ ἄμεινον.

ὅσχε θεοὶς ἐπὶ πῶδ' ἔβηται, μάλα τ' ἐκλυον αὐτοῦ.

ἦ· καὶ ἐπ' ἄρ' ὑρέην κώπῃ σέθεν χάρ' αὖ βαρύνει.

ἄτ' ἄρ' ἐκονλὲρ ὥσε μεί' αἰξίφορ, οὐδ' ἀπείθῃσε

μύθῳ ἀβηναίης· ἦ δ' οὐ λυμπὸν δέ βεβήκει

δῶμα τέρας αἰγίοχοιο Διὸς μετὰ δαίμονας ἄηνας.

πηνελόπεια δ' ἔξαυτίς ἄταρτηροῖς ἐπέεσσιν

ἄρ' ἔειπεν προσέειπε, καὶ ἔπειτα λῆγε χόλοιο.

οἰνοβαρεῖς κωδὸς ὄμματ' ἔχων κραδίην δ' ἐλάφοιο.

ἔτ' ἐποτὶς πόλεμον ἄμα λαῶ θωρηχθῆναι,

ἔτ' ἐλὸχον Διῆμαι σὺν ἀρίστας ἄχαιῶν

τέτληκας θυμῷ. τοῖ δέ τοι κῆρ' ἐδείπαι ἔμηναι

ἦ ποτ' ἐλὸν λώϊόν ἐστι κατὰ στρατὸν ὠρῶν ἀχαιῶν

δῶρ' ἀποπαρῆσθαι ὅς τις σέθεν ἀντίον ἔστη.

Δημόδορος βασιλὲν ἐπ' ἔοντι δαμοῖσιν ἀνείρεται.

ἦ γὰρ ἂν ἄρ' ἔειπεν ἄντα λαβῆσαι.

ἀλλ' ἐκ τοι ἱέρω καὶ ἐπὶ μεί' αὖ ὄρκον ὁμοῦμαι.

παῖμα τοῖ δέ σκηπτρον, τὸ μὲν οὐ πῶς φύλλα καὶ ὄζονα

φύσσει, ἐπ' ἔειπεν πρῶτα τομῶν ἐν ὄρεσσιν ἰλέοι πιν,

οὐδ' ἀναβηλῆσαι· πρὶ γὰρ ῥά ἐχαλκὸς ἔλεγε

φύλλα τε καὶ φλοῖον· νῦν αὖτέ μιν ἦες ἀχαιῶν

ἐν παλάμῃς φορέουσιν Δῖκα πόλοιο, οἷ τε βέμῃσας

πρὸς Διὸς ἐρύσσει· ὃ δέ τοι μεί' αὖ ἐσται ὄρκος.

ἦ ποτ' ἀχιλλῆος πρὸν ἔξειται ἦες ἀχαιῶν

ἐν πύλαις· τοῖς δ' οὐκ ἐπὶ δωκήσει ἀχνύμενός τ' ἔσται

χρυσῆς· ὅτ' ἂν πολλοὶ ἐφ' ἐκτορος ἀνδροφόνου

βρῆσκοντες ἐπίπῃσι· σὺ δ' ἐνδοθὶ θυμὸν ἀμύξεις

χωόμενος ὅτ' ἄριστον ἀχαιῶν οὐδ' ἐν ἔϊσας.

ὣς φάτο πηνελόπεια· ποτὶ δέ σκηπτρον βάλε γαῖαν

χρυσέοις ἡλοῖσιν πεπαρμένον ἐξ ἑὸς δ' αὖτος.

ἄρ' ἔειπεν δ' ἐτέρωθεν ἐμήνιε, τοῖσιν δ' ἐνέστωρ

PLATE IV.

Isokrates, Milano, 1493.

[Single page only.]

LOWER-CASE.

α [1] ᾱ [1] ᾱ [semi-capital, 4] ᾱ [33]
 ᾱ [i. 3, ii. 24] ᾱ [4] ᾱ [14] ᾱ [i. 12,
 ii. 23] α [9] α [2] α [1] α [19]
 ᾱ [34] ᾱ [32] ᾱ [9] α [12].
 β [1] (second β not found).
 γ [i. 4, ii. 19].
 δ [i. 2, ii. 7].
 ε [2] ε [1] ε [3] ε [3] ε [4] ε [22]
 ε [2] ε [5] ε [33] ε [22] ε [14]
 ε [7] ε [17].
 ζ [13].
 η [3] η [3] η [3] η [4] η [i. 10, ii. 24]
 η [11] η [15] η [i. 22, ii. 22].
 θ [i. 3, ii. 4].
 ι [1] ι [2] ι [2] ι [2] ι [4] ι [23].
 κ [1].
 λ [1] λ [5] λ [9].

μ [1].
 ν [1].
 ξ [2].
 ο [1] ο [2] ο [8] ο [1] ο [8] ο [1]
 ο [35].
 π [i. 1, ii. 23] π [5].
 ρ [1] ρ [6].
 σ [1] σ [2] σ [15] σ [15] σ [3].
 τ [i. 1, ii. 2].
 υ [1] υ [11] υ [i. 13, ii. 34] υ [i. 1,
 ii. 22] υ [8] υ [33]. υ [1].
 φ [9].
 χ [2] χ [11].
 ω [1] ω [12] ω [21] ω [i. 4, ii. 12]
 ω [1] ω [7].

STOPS, ETC.

Apostrophe [3], comma [2], period [2]

ὅτι τοὺς νόμους ἐσκόπειν ὅπως ἀκριβῶς καὶ καλῶς
 ἔξουσιν. οὐχ οὕτω τοὺς περὶ τῶν ἰδίων συμβολαίων, καὶ τοὺς
 περὶ τῶν καθ' ἑκάστην ἡμέραν ἐπιτηδεύματων. ἡπίσταυτο
 γὰρ, ὅτι τοῖς καλοῖς καὶ γαθοῖς τῶν ἀμθ' ὧπων, οὐδ' ἐν δ' ἐν
 σφ' πολλῶν γραμματίων, ἀλλὰ ἀπὸ λίγων συνημάτων,
 ραδίως καὶ περὶ τῶν ἰδίων καὶ περὶ τῶν κοινῶν ὁμοιοῦσιν
 σιν, οὕτω δὲ πολιτικῶς ἔχει, ὥστε καὶ τὰς τὰς σφ' ἐποι
 οῦντο πρὸς ἀλλήλους, οὐχ ὅποτεροι τοὺς ἑτέρους ἀπο
 λισταίτεσ τῶν λοιπῶν ἀρξουσιν, ἀλλ' ὅποτεροι ὀφθῆσονται
 τὴν πόλιν ἀγαθόντι ποιήσαντες, καὶ τὰς ἑταιρίας συ
 νήγον, οὐχ ὑπὲρ τῶν ἰδίων συμφερόντων, ἀλλ' ἐπὶ τῇ τοῦ πλή
 θους ὠφελείᾳ. τὸν αὐτὸν δὲ τρόπον, καὶ τὰ τῶν ἄλλων διώ
 κειν θεράπυνται. ἀλλ' οὐχ ὑβρίζοντες τοὺς ἑλληνας, καὶ τρα
 τηγῆν οἰόμενοι, ἀλλὰ μὴ τυραννῆν αὐτῶν, καὶ μάλλον
 ἐπιθυμοῦντες ἡγεμόνες ἢ δεσπόται προσαγορεύεσθαι.
 καὶ σωτήρες, ἀλλὰ μὴ λυμεῶνες ἀποκαλεῖσθαι. τῷ ποι
 ῆναι πρὸς αὐτοὺς τὰς πόλεις, ἀλλ' οὐ βία κατατρεφό
 μενοι, πιστοτέρως μὲν τοῖς λόγοις, ἢ μὲν τοῖς ὅροις χρο
 μένοι, τὰς δὲ συνθήκας, ὥς περ ἀνθρώποις ἐμμενῆν ἀξιοῦ
 ντες, οὐχ οὕτως ἐπὶ ταῖς δυνάμεισιν μεγάφρονες,
 ὥς ἐπὶ τῷ σωφρονῶσι τὴν φιλοτιμούμενοι, τὴν αὐτὴν ἀ
 ξιοῦντες ὑπομῆναι πρὸς τοὺς ἡττοῦς, ἢ περ τοὺς κρείτ
 τους πρὸς σφᾶς αὐτοὺς. ἰδία μὲν αὖτε, τὰς αὐτῶν πό
 λεις ἡγούμενοι, κοινῇ δὲ πατρίδα τὴν ἐλλάδα μοιζον
 τες ἔμμεν, τοιαύταις δὲ διαμοίαισιν χροόμενοι, καὶ τοὺς με
 τέρους τοιούτοις ἡθεσι παιδεύοντες, οὕτως ἀνδρας
 ἀγαθοὺς ἀπέδειξαν τοὺς πολεμήσαντας πρὸς τοὺς
 ἐκ τῆς ἀσίας, ὥστε μὴδεὶα πώποτε δυνήσκειν περὶ
 αὐτῶν μήτε ποιητῶν, μήτε τῶν σοφιστῶν ἀξίως τῶν ἐκ
 ῆρας πεπραγμένων πεῖν, καὶ πολλὰ αὐτοῖς ἐχωσὺ γρομῆν.
 ὁμοίως γὰρ ἐπὶ χαλεπὸν ἐπαυρῆν τοὺς ὑπερβεβηκότας τὰς
 τῶν ἄλλων ἀρετάς, ὥς περ τοὺς μὴδ' ἐν ἀγαθῷ πεποιηκότας.
 τοῖς μὲν γὰρ οὐχ ὑπερῆσαν, πρᾶξας, πρὸς δὲ τοὺς οὐκ ἐσὶν ἀρμότ
 οῖς λόγῳ, πῶς γὰρ ἀν' ἑμὶ σὺ μέντοι τοιούτοις ἀνδρά
 σιν, οἱ τοσούτοι τῶν ἐπὶ τῷ αὐτῷ αὐτῶν ἀμείνων διημεῖκα, ὅ

PLATE V.

Batrachomomachia and Psalter, Venice, 1486.

[Whole fount. The *a*, *b* in the capitals refer to the facsimile from the Psalter (*a*) and to the three lines of capitals from the Batrachomomachia (*b*) respectively.]

CAPITALS.

A [i. b2, ii. b2] 'A 'A [b1] A' [b1] 'A
 'A 'A B [b1] Γ [i. b2, ii] Δ [b2]
 E 'E [b2] 'E E' [b2] 'E 'E [úpi] E Z
 H [b2] 'H 'H H' [b1] 'H 'H 'H 'H
 Θ I [b2] 'I I' [b2] 'I K [b3] Λ
 M [a4, b1] · N [b2] Ξ O [b1]
 'O [b1] 'O [b1] O' O' O' O' O' Π
 P [a12, b1] Σ [b2] T [b1] Υ [i. b1,
 ii. b1] 'Y 'Y Φ X [b1] Ψ Ω
 'Ω 'Ω 'Ω 'Ω. [62 sorts.]

LOWER-CASE.

α [i. 3, ii] ἄ [i. 8, ii. 14, iii. 21] ᾱ [i, ii]
 ἄ [i. 4, ii. 9, iii] ἶ [i. 17, ii] ἶ [i, ii]
 ᾶ [1] ᾶ ᾶ [16] ἄρ ἄρ ἄρ ἄρ ἄρ
 ἄρᾱ ἄρρ ἄρρ ἄρρ ἄρρ ἄρρ [i, ii] ἄρρ
 ἄρῆ [i, ii] ἄρρῆ ἄρρῆ ἄρρῆ ἄρρῆ ἄρρῆ
 ἄρω [i, ii] ἄρρω ἄρρῶ ἄρ ἄρ αἰ [i, ii]
 αἶ [i, ii] αἶ αἶ αἶ αἶ αἶ αἶ αἶ
 αἶς αν [18] ἄν [i. 15, ii. 17] ἄν [26]
 ἄν [2] ἄν ἄν [i, ii] ἄν αν εἰ εἰ αο
 αρ [i. 14, ii] ἄρ ἄρ ἄρ ἄρ ἄρ ας
 ἄς ἄς ἄς ἄς ἄς ἄς ἄς ἄς ἄς ασι αυ
 αῖ [i. 7, ii] αῖ αυ αῖ [i, ii] αῖ αῖ
 αῖθι αῖτα αῖτη αυτῆ αυτῆ [8] αῖτο
 αῖτο [2] αῖτο αῖτο αῖτο αῖτο [19]
 αυτῶ αυτῶ [i. 9, ii] [110 sorts.]
 β [i. 7, ii] β' [i, ii] β' βα βᾶ βε βη
 βῆ βι βλ βο βρ. [14 sorts.]

ρ [i. sig., ii] ρ ρ ρα [i. 9, ii] ρά ρά
 ραι ραι ραι ραι ραν ραν ραρ ραρ
 ράρ [i, ii] ρας ρας ρας ρας ρρ [i. 1,
 ii] ρε [i, ii] ρέ [i, ii] ρε ρε ρει [i, ii]
 ρει ρει ρει ρεν [i-iii] ρέν [i-iii] ρερ
 ρέρ ρέρ ρη [i-iii] ρή ρή ρη [i, ii]
 ρην ρην ρην [i, ii] ρο [6] ρι [3] ρι [5]
 ρκ ρλ ρν [i, ii] ρσ [i, ii] ρό ρό
 ρρ [i, ii] ρυ ρυ ρυν ρύν ρω [i, ii]
 ρώ ρώ [19] ρώ [i, ii] [78 sorts.]

δ [i. sig., ii, iii] δ' δ' δ' δα [i, ii]
 δά [i, ii] δᾶδ' [=δαβιδ] δαι δαι δαί
 δαν δάν δαρ δάρ δας δε [i. 23, ii]
 δέ [i, ii] δέ [i. 8, ii] δ'ε' δει δει δει
 δεν [i, ii] δέν δερ δέρ δεσ δευ δέυ
 δεύ δη [i, ii] δή δῆ δῆ δην δῆν
 δι [i. 2, ii. 4] δι [17] δι δο [i. 3, ii]
 δό [i, ii] δό [i, ii] δδ δρ [i, ii] δυ
 δύ δυ δυν δύν δύν δω [i. 2, ii] δώ
 δώ δῶ. [69 sorts.]

ε [i. 1, ii, iii] ἐ [i. 5, ii. 16] ἐ [i, ii]
 é [i. 7, ii] è ě [i. 3, ii] ě [i, ii] εϛ
 ěϛ ěϛ ěϛ εϛα ěϛϛ ěϛϛ ěϛε ěϛé ěϛει
 ěϛλ ěϛο ěϛω ěϛω [i, ii] ěϛω [i-iii]
 εϛω ει [i. 6, ii] ει [22] ει [19] ει
 ει ει ει [i, ii] εκ εκ [i. 12, ii] ἐλ
 εν [i, ii] ἐν [i. 7, ii. 19, iii] ἐν ἐν
 εē ēē [i, ii] ἐπι [i, ii] ἐπι [i. 9, ii]
 ep ep [15] ἐς ετ ετ ευ ευ [i. 24,
 ii. 26] ευ ευ ευ ευ ευ [i, ii] ευ
 ex exei ἐχο ἐχό. [80 sorts.]

五

†

4

4

本

σ ς[1] ῥ ϛ Ϸ[12] Ϸ̣[12] Ϸ̧ Ϸ̨
σα[ι, ii] σά[ι. 20, ii] σαι σαί
σαν[ι. 4, ii. 26, iii. 27] σάν[17]
σαρ σάρ σας σάς σου σε[ι. 9, ii. 9, iii]
σέ[ι, ii] σὲ σει[ι, ii] σελ σεί[8]
σεν σευ σεύ ση[ι, ii] σή[ι, ii] σῆ
ση σθα σθαι[ι, ii] σθαί σθε[ι, ii]
σθέ[ι, ii] σθελ σθελ σθέν[ι, ii]
σθη[ι, ii] σθή σθῆ σθην[ι, ii] σθλ
σθό σθό σθύ σθω[ι, ii] σθῶ σι[ι.
11, ii] σλ[23] σλ σκ[1] σο[ι. 12, ii]
σό σό σπ σσ στ στα[ι, ii] στρά[ι.
15, ii] στα̣ στα̧[11] σται σταί
σταλ στε[ι. 13, ii] στέ[ι, ii] στει
στελ[21] στεί στερ στέρ στευ στεύ
σθη[ι, ii] σθή στή σῆ σθην σῆ

στι[1, ii] στι στο[24] στό στο
 στρ[22] στυ στύ στω[1, ii] στώ
 στώ συ[6] σύ σύ συν[27] σύν
 σύν σφ σχ σχα σχά σχε σχέ χει
 χει σην σήν σχι σχο σχό σχυ σχύ
 σχυν σχύν σχύν σω[1, 10, ii]
 σώ[1, ii] σώ. [150 sorts.]
 τ τ τα[2] τά τὰ[11] τὰ ται[1, 8,
 ii, 23] ται ται ταί ταν[1-iii] τάν
 τάν ταρ τάρ τας τάς τὰς τὰς ταύ
 ταυ τε[1, 18, ii] τέ[1, 13, ii]
 τέ[26] τει τεί τεί τερ[1, 9, ii, iii]
 τέρ[1, ii] τες τέσ τευ τεύ τη[1,
 10, ii] τή τη τῆ[1, 7, ii] τῆν[4]
 τῆν[1, 4, ii] τι[1, 2, ii, iii] τ[11]
 τὶ το[1, 1, ii] τό[7] τὸ τὸ τρ
 τυ[15] τύ τυν τύν τω[1, 7, ii, 5]
 τώ τῶ. [69 sorts.]
 υ[3] ὕ[5] ὕ[1, ii] ὕ ὕ ὕ[10] ὕ ὕ
 υι υῖ υν[20] ὕν ὕν[1, ii] , ὕν υπ
 ὕπ[1, ii] υπαν υς υς ὕς ὕς[2] ὕς
 ὕς ὕς ὕς ὕς ὕς υσι. [31 sorts.]
 φ[1, 3, ii, 26, iii, iv] φ' φ' φ'. [7
 sorts.]
 χ[5] χ' χα[1, ii] χά[1, ii] χὰ χὰ
 χαί χαί χαί χαί χαν χάν χαρ χάρ
 χας χας χας χε[1, ii] χέ χέ
 χει[1, 12, ii] χεί χεί χεί χεν χερ

χεσ χευ χεύ χη[1, ii] χή[8] χῆ
 χῆ[18] χην χην[1, ii] χθ[1, 27, ii]
 χι χί χι χν χο[12] χό χό χό χρ
 χυ χύ χύ χυν χύν χῶ[1, ii] χῶ
 χῶ χῶ. [62 sorts.]
 ψ πα[1, ii] πά[1, ii] παι παν πάν[3]
 πας πας πε[1, 6, ii] πέ[1, ii] πει
 πεν[1, ii] πευ πεύ πη[1, ii] πι
 πῖ πο πό πῶ πυ[4] πύ πω[1, ii]
 πῶ πῶ[1, ii]. [33 sorts.]
 ω[1, 10, ii] ὦ[4] ὦ[23] ὦ[1, 2, ii]
 ὦ ὦ[1, 23, ii, iii] ὦ ὦ[1, ii] ὦ
 ὦ[1-iii] ὦν. [18 sorts.]

STOPS.

Large and small period, comma, and semi-colon (= question mark).

NUMERALS.

ς ς ς.

Capitals [62] α[110] β[14] γ[78] δ[69]
 ε[80] ζ[2] η[36] θ[68] ι[13] κ[98]
 λ[12] μ[89] ν[13] ξ[3] ο[15] π[82]
 ρ[6] σ[150] τ[69] υ[31] φ[7]
 χ[62] ψ[33] ω[18] Numerals 3
 Total 1223 sorts.

PLATE VI.

Apollonios Rhodios, Florence, 1496.

[Whole fount as used in that book. A few sorts found only in the
Lucian are added in parenthesis.]

CAPITALS.

A[4] B Γ Δ E[23] Z H[27] Θ I
K Λ[1] M N Ξ O Π[i. 26, ii]
P Σ T[10] Y Φ X Ψ Ω[18].

SMALL CAPITALS.

A[6] B[9] Γ[6] Δ[6] E[6] Z
H[6] Θ[7] I[6] K[6] Λ[6]
M[6] N[6] Ξ[8] O[6] Π[i. 7,
ii. 12] P[6] Σ[6] T[6] Y[6]
Φ[6] X[6] Ψ Ω[9] Iota ad-
script[8].

ACCENTS, ETC.

Smooth[6] and rough[10] breathing; acute
[6] grave[6] and circumflex[7] accent;
apostrophe[6]; diaeresis, and diaeresis
with acute accent[13]. Period[1], colon
[4], comma[8], hyphen[15].

LOWER-CASE.

α[i. 1, ii. 12] ᾱ[2] ᾱ[23] ᾱ[i. 11,
ii. 24] ᾱ[2] ᾱ[23] ᾱ ᾱ[31] ᾱ
ᾱ ᾱ α ᾱ (ᾱ) αι[23] αι[29] αῖ[26]
αλλ[27] ᾱλλ[29] ᾱλλ αυ αῦ[3].
β[i. 3, ii].
γ[i. 1, ii. 24] γᾱρ[31] γρ[2] γρ[8].
δ[i. 1, ii. 2] δ.

ε[i. 1, ii. 1] ἔ[1] ἔ ἔ[1] ἔ[1]
ἔ[25] ἔ ἔ εῖ[3] εῖ[2] εῖ εῖ
ελλ ἔλλ ες[31] ἔς ευ[20] εὐ[3].
ζ[14] (ζ ii).
η[i. 1, ii. 28] ἦ ἦ[i. 11, ii. 25] ἦ[26]
ἦ[26] ἦ[2] ἦ[3] ἦ ἦ ἦ[4] ἦ
ἦ ἦ ἦ.
θ[i. 1, ii. 1] θ.
ι[1] ἰ ἰ [1] ι[2] ἱ[2] ἱ ἱ ἱ ἱ ἱ.
κ[1] καί[18].
λ[1].
μ[1] μμ.
ν[i. 1, ii. 3].
ξ[4].
ο[1] ὀ ὀ[1] ὀ[29] ὀ[i. 1, ii. 22]
ὀ[6] ὀ[12] ὀ ὀ ὀ οἰ(?) οἰ(?)
ου[2] οὐ.
π[i. 1, ii. 1].
ρ[i. 1, ii. 1] ῥ[32] ῥ[32].
σ[1] ς[1] σθ[12] σπ[30] σσ στ[30]
στι[24].
τ[i. 2, ii. 4] τ' [31] ται τες την
τήν[1] τί[24] τῖν το τ' ὀ τοῖς
τοῖς[5] τὸν[4] τος τοῦ[2] τρ ττ
των τῶν[10].
υ[4] ὕ[2] ὕ[25] ὕ[31] ὕ[1] ὕ
ῦ[2] ῦ[26] ῦ[27] υἱ υῖ[24]
υἱ υἱ.
φ[i. 1, ii] φ'.
χ[1] χ'.
ψ.
ω[1] ὠ ὠ[1] ὠ[22] ὠ ὠ[9] ὠ
ὠ ὠ ὠ ὠ φ[3] ὠ[13].

Λέχρεις ἐπιχρίμφοις· παλῖως πρὸς τὴν κρήνην ἐπικλιθεὶς· ὁ δὲ νοῦς ὡς
καθῆκε τὴν ὑδρίαν ἐπὶ τὴν κρήνην ἐμφορὺς μέν· τὴν ὑδρίαν δὲ εἰς τὸ ἀέριον μετὰ
σφοδρῶς ἤχῃ ἢ νύμφη τὴν ἐν δυνάμει χάρι· τὴν αὐχένος αὐτὴν ἐπιλαβομένη
τὴν ἐφίλη φησὶν· τὴν δεξιὰ δὲ κατὰ λικύσεν αὐτὴν εἰς τὸ ὑδρῶς· Αὐτίκα δὴ ἦε·

ΧΑΛΚὸν Εἰς ἡχέντα ἑορεύμενον· αὐτίκα δὴ ἦε
ΛΑΙὸν ΜΕΝ ΚΑΘΥΠΕΡΘΕΝ Εἰ ΠΑΥΧΕΝΟΣ ἈΝΘΕΤΟ ΓῆΧΥΝ
ΚΥΤΑΙ Εἰ ΠΙΘΟΥΣΑ ΤΕΡΕΝ ΣΤΟΜΑ· ΔΕΞΙΤΕΡῶ ΔΕ
ἈΓΚΩΝ ἔχρασε ΧΕΙΡΙ· ΜΕΧΗ ΔΕΝΙΚΑΒΒΑΛΕ ΔΙΝΗ·
ΤΟΥ ΔΗΡΩΣ ΙΑΧΟΝΤΟΣ· Εἰ ΕΚΛΥΕΝ ΟἶΟΣ ΕΤΑΙΡΩΝ
ΕἰΛΑΤΙΑΝΣ ΡΟΔΙΣΗΜΟΣ· ΙὼΝ ΠΡΟΤΕΡΩΣ ΚΕΛΕΥΘΟΥ·
ΔΕΚΤΟ ΓΑΡ ἩΡΑΚΛῆΑ ΠΕΛΩΡΙΟΝ ΟΠΡΟΘΙΚΟΙΤΟ·
Βῆ ΔΕ ΜΕΤΑΙΞΑΣ ΓΗΓΕΩΝ ΣΧΕΔΟΝ· ἢ ΥΤΕ ΤΙΣ ΘῆΡ
ἈΓΡΙΟΣ ὅΝ Εἶ ΤΕ ΓῆΡΥΣ ΑΠΟΠΡΟΘΕΝ ἵΚΕΤΟ ΜῆΛΩΝ·
ΛΙΜΩΔΑΙΣΘΟΜΕΝΟΣ ΜΕΤΑΝΙΣΤΑΙ· ΟΥΔΕ ΕΓΕΚΥΡΣΕ
ΡΟΙΜΝΗΣΙΝ· ΠΡὸ ΓΑΡ ΑΥΤΟΙ ΕΝΙ ΣΤΑΘΜΟΙΣΙ ΝΟΜῆΕΣ
ἔΛΞΑΝ· ΟΔΕ ΣΤΕΝΑΧΩΝ ΒΡΕΜΕΙ ἈΣΠΕΤΟΝ ὍΡΑ ΚΑΜΗ·
ΩΣ ΤΟΤ' ἈΡ' ΕἰΛΑΤΙΑΝΣ ΜΕΓΑΤ' ΕΣΤΕΝΕΝ· ἈΜΕΙ ΔΕ· ΣΙΝ·
ΣΟΪΤΑ ΚΕΚΛΗΓΩΣ· ΜΕΛΕΝ ΔΕ Οἱ ΕΠΛΕΤΟ ΦΩΝῆ· ΧΩΡΟΝ

θεόκριτος ἐμ
βυκολοις ἐμ
τῶ ὑλα ἐπι
γραφομένον
ὑπὸ πασῶν
φησὶν αὐτὸν τ
νυμφῶν ἡρπα
δα ὄνασσο
δὲ ἐν τῶ· α· τ
ἀμαζονικῶν
πεσόντα τὸ
λαμφκὶν ὑ·
ἡρβρύχιον τ
μεσθαι· ἢ γνί·
καυδρὸς ἐν τῶ
δουτέρῳ τὸ
ταυροὺς μένω

ὑπὸ πασῶν φησὶν αὐτὸν ἡρπαῖναι τὴν νυμφῶν· ὁ δὲ ἀφ' ἑλῶντος ὑπὸ μῆ
αἶς· Τέρεν· τὸ ἀπαλόν· ἐκ δὲ τούτου τὸ νέον· Εἰλατίας· γράφεται ἢ ἐλα
σίτης· κατὰ γὰρ τίνας ἐλάσας ὑὸς ἐστὶν ὁ ἡλύφης· κατὰ δὲ τίνας ἡσθῶ
νος· ἢ ὑνῶκα δὲ ἔσχε· ὁ ἡλύφης λαονόμην ἡρακλῆος ἀδελφὴν· ἀμφὶ ὑ
ωνος ἢ ἀλκμήνης θυγατέρα· Προτέρω· ἀντὶ τὸ εἰς τὸ ὑμπεροδεντὴς κελεύ
ου· ἢ ὑτὲ τίς θῆρ· κυρίως οἱ ποικίλαι τὴν ὄψιν αἰσθητὰ· ὡς ἢ καμῖ μαχος·
ἢ ἢ ἢ ἀετῶν ἀερμακάτωμα διον· Αἰσόμενος· καὶ ὁ μωρὸς τῶ λῆμῳ· τὸ
δὲ τοκῦτον ἔχων ὁ λῆμὸς ἀερμασίας ἐστὶ ποικίλτος· ἀλλὰ τὸ αἰσόμενος ἢ
ἐπὶ τῷ αἰσθῶν ἐστὶν· Εἰς αἰσθῶσι· ἐν ἡλλακταὶ ἢ ἐν· πρὸς αἰσθῶσι· ἀντὶ τῆς
ἢ ὁ γὰρ τοῦ οἰγνομήδους εἰς τοῦς σταθμούς προήλασαν· Ὡς τὸ τ' ἄρ' ἐλατίας·
ἀόλῃ ὑγίης ἢ ἐρεῶ μένη ἢ ἐκῶν·

PLATE VII.

Batrachomuomachia, Brescia, c. 1474.

In this the roman type is much blurred, partly because the printing over leaf shows through, partly owing to defective presswork and pen alterations. The Greek suffers from the second cause to a less extent, and there is no printing beneath it on the other side. In line 1 the blur over the η in ἀπέφηνε is printed. The following are changes made by hand. Line 2: εἰσελθὼν, the accent; φενας, the ρ is inserted. Line 3: ὁ αὐτῶν, both apostrophe and breathing; μεμφομένων, the ω is made from $\omicron$; the last letter in φυσίγναθος. Line 4: $\omicron$ in ουκ, κ and α in ἔκταν, and the accent, υ in μυν, $\delta\upsilon\delta$ in $\delta\upsilon\delta\epsilon$, κ and the circumflex in κατεῖδόν. Line 5: second λ , μ , and first ν in ὀλλυμενον, δ and ν in δεινίγη, ρ in περι. Line 6: ς of τὰς, first α and $\chi\omega$ of βατραχων, $\nu\omicron\varsigma$ of μιμουμενος, $\acute{\omicron}$ and the accent of ὁλ, first ι in κακιστολ. Line 7: first α , τ , and $\omicron$ of ανατιον, first λ of αλλαγε. Line 8: ω in ζητήσωμεν; the last word is insufficiently inked. Line 10: μ and both α in the first, ν in the second word. Line 11: the η in κατακρημνος is imperfectly inked. Line 12: ρ in the second word: σ in the last word is added.

α [1] $\acute{\alpha}$ from $\check{\alpha}$ [10] α $\acute{\alpha}$ from $\check{\alpha}$ $\acute{\alpha}$ from $\check{\alpha}$ [3, 6, 9] $\check{\alpha}$ [9] $\check{\alpha}$; β [2]; γ [1]; δ [1] δ ; ϵ [2] ϵ [i. 1, 2, ii. 2] $\acute{\epsilon}$ $\acute{\epsilon}$ from $\check{\epsilon}$ $\acute{\epsilon}$ $\acute{\epsilon}$ from $\check{\epsilon}$ [1] $\check{\epsilon}$ $\check{\epsilon}$ [9] $\check{\epsilon}$; ζ [8]; η [1] $\acute{\eta}$ $\acute{\eta}$ [12] $\acute{\eta}$ from $\check{\eta}$ [6] $\acute{\eta}$ $\acute{\eta}$ $\acute{\eta}$ $\acute{\eta}$ $\acute{\eta}$ $\acute{\eta}$; θ [2] θ ; ι [1] i roman without dot [1] $\acute{\iota}$ [8] $\acute{\iota}$ [5, 11, 12] $\acute{\iota}$ with dot [5] $\acute{\iota}$; κ [4]; λ [1]; μ [1]; ν [i. 1, ii. 1] ν ; ξ [2]; $\omicron$ [1] $\acute{\omicron}$ from $\check{\omicron}$ [5, 12] $\acute{\omicron}$ from $\check{\omicron}$ or $\check{\omicron}$ [1] $\acute{\omicron}$ [3, but altered to $\acute{\omega}$] $\acute{\omicron}$ from $\check{\omicron}$ [4] $\check{\omicron}$ [1] $\check{\omicron}$ [1, 8] $\check{\omicron}$ [11]; π [i. 1, ii. 5]; ρ [2] $\acute{\rho}$; σ [1] ς [1] $\sigma\theta$ $\sigma\varsigma$ [11] $\sigma\tau$ [3]; τ [i. 1, ii. 4]; υ [1]; ϕ [1]; χ [2]; ω [2] $\acute{\omega}$ $\acute{\omega}$ $\acute{\omega}$ [i. 1, ii. 2] $\acute{\omega}$ from $\check{\omega}$? [1] from $\check{\omega}$ [10] $\check{\omega}$ [4] $\check{\omega}$.

σ' εἰ πῶν ἀπέφηνε λόγος δαΐδ' ὄνατα μυνῶν
 Sic locutus tacuit: sermo aut̃ i auref̃ mure
 εἰ σε λθὼν ἐταράξε φένας βατραχῶν ἀγέρδων
 Ingulfus perturbavit mētes ranarū sup̃barū
 μεμφομενῶν δ' αὐτῶν φησὶ γναθὸς εἰπὲν ἀνασῶσ
 Culprāntes aut̃ ipsū ph̃ygnitus dixit surgēs
 ὦ φίλοι ὄνκε' ἔτανα γ' ἐγὼ μυν ὄνδ' ἐκατ' ἑλθόν
 O amici nō occidi ego mure neq' asprexi
 ὀλυμενον, παντῶσ' λεπνίγῃ παΐων περὶ λιμνῇ
 Pereuntes: ὀνιπε αὐτ̃ suffocatus ē ludēs circa lacū
 κήξεις τὰς βατραχῶν μεμνονμενος οἱ δὲ κεκισοί
 N atat ones ranarū imitās: pessime aut̃
 νυν ἔμε μεμφονταί τὸν ἀναίτιον, ἀλλ' ἀγε βουλήν
 N ūc me culprāt̃ infontē: Sed ah cōsiliū
 ζητήσωμεν ὅπως δολίονσ' μνας ἐξολέσσωμεν.
 Quetamus: quomōdolofoz mures perdamus
 τοῖ γάρ ἐγὼν ἐρέω ὥς μοι δοκεῖ εἶναι ἄριστα
 E nī ego dicā sicut m̃hi uidetur esse optimū
 σώματα κοσμήσαντες ἐν ὀπλοῖς ζῶμεν ἅπαντες
 Coerpta ornātes ac mat̃i stemus cūcti
 ἀκροῖσ' πᾶρ τείχεσσιν ὅπων κατακρημνοσ' ὀχῶρος.
 S ūma iuxta labra ubi praeceptus locus
 ἡθικά δόρμηθέντες ἐφ' ἡμέας ἐξέλωσ' ἡ.
 Quādo aut̃ cū ipetu moti ad nos exeant

VII. BRESCIA, T. FERRANDUS, C. 1474.

PLATE VIII.

Chrusoloras, Vicenza, c. 1475-1476.

[Whole fount.]

LOWER-CASE.

α [1].	ν [i. 1, ii. 3].
β [1].	ξ [i].
γ [5].	ο [i. 1, ii. 1].
δ [i. 4, ii. 10].	π [1].
ε [i. 1, ii. 1].	ρ [1].
ζ [3].	σ [2] ς [2].
η [i. 3, ii. 1].	τ [i. 1, ii. 4].
θ [i. 16, ii. 17].	υ [i. 1, ii. 1].
ι [i. 1, ii. 6].	φ [4].
κ [2].	χ [i. 6, ii. 11].
λ [4].	ψ [6].
μ [2].	ω [1].

LIGATURES.

αι [2] αυ.	ππ [4].
ει [1].	σθ σπ [2] στ.
λλ [6].	ττ.
ου [4].	υυ υς.

ACCENTS AND BREATHINGS.

˘ [2]	˙ [1]	˘ [2]	ˆ [1]	˘ [6]
˙ [4]	˙ [1]	˙ [4].		

Sex Varitonorum, tres. circū
flexorum. quattuor in mi.

Prima cōiugatio Varitonorū
per. ε. uel. π. uel. φ. uel. ω. ut. li
bo. relinquo. scribo. uerbero. &
in futuro. †. habet. ut libabo.
scribam. uerberabo. & præteri
to perfecto. φ. ut scripsi uerbe
raui.

Secunda per. γ. uel. κ. uel. χ.
uel. κτ. ut Dico. Implico. Cur
ro. Parturio. & in futuro. ξ. ha
bet. ut dicam. implicabo. & ī p̄
terito perfecto. χ. ut dixi ipli
cui.

Tertia per. α. uel. θ. uel. τ. ut
Cano. abundo. festino. & in fu
turo. σ. habet. ut canam. abun
dabo. festinabo. et in

ἐξ τῶν βαρυτόνων. τρεῖς τῶν πίσι
σσωμένων. καὶ τέσσαρες τῶν ῥέσι.
πρωτὴ συνιγία τῶν βαρυτόνων
διὰ τῶν ε. ή. π. ή. φ. ή. ω. οἱ σμ λδ
εω. λδ πω. γραφω. τν ωω. καὶ
ἐπὶ τῶν μέλλοντος το †. ε. χδ. οἱ
ον. λδ τω. γρατω. τν τω. καὶ
ἐπὶ τῶν παρακείμεν το φ. ε. χδ.
οἱ σμ γεγραφα. τετυφα.

Δευτέρα διὰ τῶν γ. κ. χ. ή. κ.
κτ. οἱ σμ λεγω. πλεκω. τρεχω.
τικτω. καὶ ἐπὶ τῶν μέλλοντος το
ξ. ε. χδ. οἱ σμ λεξω. πλεξω. καὶ
ἐπὶ τῶν παρακείμεν το χ. οἱ σμ
λελεχα. πέπλεχα.

τρίτη διὰ τῶν α. ή. θ. ή. τ. οἱ σμ α
ρω. πληθω. ανυτω. καὶ ἐπὶ τῶν
μέλλοντος το σ. ε. χδ. οἱ σμ α
σω. πλησω. ανυσω. καὶ ἐπὶ τῶν

PLATE IX.

Chrusoloras, Parma, c. 1481.

[Whole fount; but those enumerated are not all distinct sorts, some being formed by erasure.]

α[1]	α[20]	ά[7]	ά̇[3]	α̇ ᾶ[20]	ν[i. 1, ii. 1].
ᾶ ᾷ.					Ξ[1].
β[1].					ο[1] ὀ ὁ ὅ[1] ὀ̇[8] ὀ̇[5] ὀ̇ ὀ̇.
Γ[4].					π[i. 2, ii. 2] ππ.
δ[5].					ρ[1] ῥ.
ε[1] ἐ[7] ἔ[2] ἐ̇ ἑ ἔ[1] ἔ̇.					σ[1] ὀ̇ ς[2] σθ σς[3] στ.
ζ[25].					τ[i. 1, ii. 2].
Η[4] Ἡ[22] Ἡ̇[20] Ἡ̇ Ἡ̇[6] Ἡ̇ Ἡ̇[5].					υ[1] ὕ ὖ ὗ[7] ὕ ὕ[14] ὕ ὕ ὕ.
θ[19].					φ[7] φ̇.
ι[2] ἰ[3] ἰ̇[4] ἰ̇[7] ἰ̇[i. 1, ii. 2]					χ[9].
ἰ̇ ἰ̇[8]; also roman i[3].					ψ[8].
κ[3].					ω[i. 2, ii. 2, iii. 6] ὦ ὦ ὦ[4] ὦ
λ[6].					ὦ[i. 1, ii. 2] ὦ ὦ.
μ[2].					

decim. sex uaritonorū.
trēs circumflexorum.
quattuor in ui.

Prima cōiugatio uarito
nor per β. uel π. uel φ.
uel πτ. ut libo. reliquo
scribo. uerbero. & in fu
turo ψ habet: ut libabo
scribam. uerberabo. &
in p̄terito perfecto φ. ut
scripsi. uerberaui.

Secūda p γ. uel κ. uel χ
uel κτ. ut dico. iplico.
curro. parturio. & in fu
turo ξ habet. ut dicam.
implicabo. & in pr̄te/
ritoperfecto χ. ut dixi.
implicui.

Tertia p Δ. uel θ. uel φ.
ut cano. abūdo. festino.
& in futuro σ habet. ut
canam. abundabo. festi
nabo. & in pr̄terito κ
habet. ut abundaui.

Quarta cōiugatiō per ζ.

τρεῖς. ἔξ τῶν βαρυστόνων.
Τρεῖς τῶν περισπωμένων.
καὶ τέσσαρες τῶν εἰς μι.

πρώτη συζυγία τῶν βαρῶ
τόνων διὰ τοῦ β. ἢ π. ἢ φ.
ἢ πτ. οἷον λείβω. λείπτω.
γράφω. τύπτω. καὶ ἐπὶ τοῦ
μέλλοντος τὸ ψ ἔχει. οἷον
λείψω. γράψω. τύψω. καὶ
ἐπὶ τοῦ παρακειμένου τὸ
φ. οἷον γέγραφα. τέτοφα.
Δευτέρα διὰ τοῦ γ. ἢ κ. ἢ χ
ἢ κτ. οἷον λέγω. πλέκω.
τρέχω. τίκτω. καὶ ἐπὶ τοῦ
μέλλοντος τὸ ξ ἔχει. οἷον
λέγω. πλέξω. καὶ ἐπὶ τοῦ
παρακειμένου τὸ χ. οἷον
λέλεχα. πέπλεχα.

Τρίτη διὰ τοῦ Δ. ἢ θ. ἢ τ.
οἷον ἄΔω. πλῆθω. ἀνύτω.
καὶ ἐπὶ τοῦ μέλλοντος τὸ
σ ἔχει. οἷον ἄσω. πλήσω. ἀ
νύσω. καὶ ἐπὶ τοῦ παρακει
μένου τὸ κ ἔχει. οἷον πέπ
ληκα. Τετάρτη διὰ τοῦ ζ.

PLATES X, XI.

Crastonus and Chrusoloras, Vicenza and Venice, 1483-1484.

[Whole fount. Some forms here also are made by erasure.

The letter *a* refers to plate X, *b* to plate XI.]

CAPITALS.

A A A B Γ Δ E E' Z H H H'
H' Θ I [K roman] Λ M N Ξ O
'O Π P Σ T [b 21] Y [= A broken
reversed, also roman Y] Φ Χ Ω Ω'.

LOWER-CASE.

α [a 1, b 2] ᾱ [i. 1483 only, ii. b 5] ᾰ
ᾱ [b 29] ᾱ [b 2] ᾱ [b 3] ᾱ [b 1] ᾱ.
β [a 16, b 8].
γ [i. a 9, b 2, ii. 1483 only].
δ [i. a 1, b 4, ii. a 2, b 3, iii. 1483 only].
ε [i. a 28, b 10, ii. a 29, b 10] ε [i. b 4, ii]
ε [i, ii] ε [a 4, b 4] ε [b 4] ε [a 4, b 5]
ε ε [b 10].
ζ [i. a 5, b 6, ii. 1483 only].
η [a 1, b 4] η η [a 12, b 20] η [a 28, b 22]
η [a 7, b 2] η [i. a 7] η [ii. b 28] η
η [b 20] η [b 20] η η.
θ [a 42, b 10].
* ι [i. a 1, b 1, ii. a 4, b 3, iii. a 36, b 14]
ι [1483 only] ι ι [i. a 40, ii. a 41,
b 20, iii. a 5, iv. b 15] ι [i. b 18, ii. b 20,
iii. b 23] ι [i. a 13, b 18, ii] ι ι ι.
κ [i. a 15, b 2, ii. 1483 only].

λ [i. a 22, b 23, ii. a 22, b 1] λλ [b 22].
μ [i. a 1, b 6, ii. a 1].
ν [i. a 28, b 3, ii. (roman ν) b 2].
ξ [i. 1483 only, ii. a 14].
ο [i. a 1, b 1, ii. a 6, b 1] ο ο [a 12] ο [a 9]
ο [a 18, b 10] ο ο ο ο [b 8] ο ο [b 4].
π [i. a 1, b 2, ii. a 1, b 5, iii. a 1, b 10].
ρ [i. a 2, b 1, ii. a 3, b 15] ρ ρ [b 3].
σ [a 1, b 1] σ [a 7, b 1, also roman c]
σθ [a 31, b 7] σπ [a 13] σσ [a 32, b 29]
στ [a 40, b 1].
τ [i. a 5, b 1, ii. a 6, iii. b 11].
υ [i. a 7, b 16, ii. a 10, b 17] υ [b 9] υ [i.
b 27, ii] υ υ [b 5] υ.
φ [b 1].
χ [a 4 (upside down, 12, 14), b 1].
ψ.
ω [i. a 1, b 3, ii. a 2, b 21, iii. a 2] ω
ω [i. b 22, ii] ω [a 15, b 29] ω ω ω
ω ω ω.

STOPS, ETC.

Period (2 forms), question mark, and long
comma, all from the roman type.

Nine special sorts are used in 1484 on
fo. 2^a.

* The number of *ι*-forms, and the difficulty of distinguishing between them, make these
results very doubtful.

προσ επιλημέω . μ . ἡσώ . τω . ηκᾶ .	appello . lis . neu . absol .
προσ ἐρεῖω . μ . εἰσώ . τω . εικῶ .	applico . innitor . acti . accu . iung .
προσ ἐρέω .	narro . appello . laudo .
προσ ἐρχομαι .	accedo . depo . da . iung . require . ἔρχομαι .
προσεταιρίω . μ . ἰσώ . τω . εκᾶ .	socium assumo . neu . absol .
προσ ἐτι .	adhuc . præterea .
προσ εὐχῇ . ἡς .	oratio quæ ad deū funditur q̄si πρὸ σεχῇ quoniam attēde opus sit oratio aut oratorium λόγος dicitur .
προσ εὐχόμεναι . μ . εὐσομαι . τω . εὐγμαι .	oro . adoro . proprie deum depo . da . iung .
προσ ἐχῆς . εἰς . ὁ . ἡ .	continuus continens .
	πρὸς Λαῖος
προσ ἐχω . μ . ἐξώ . τω . προσ ἐσχ .	attēdo . itēdo . adhibeo . neu . da . iu .
προσ ημιόω . μ . ὠσώ . τω . ωκα .	damno . afficio . acti . accu . iung .
πρὸς ἡβος . οὐ . ὁ .	pubes .
προσ ηγορία . ας . ἡ .	salutatio . appellatio .
προσ ηγορικὸς . οὐ . ὁ .	appellatiuus .
προσ ηγορος . οὐ . ὁ .	appellatiuus salutatiuus appellatio .
προσ ηκω .	conuenio . i . cōgruo . neu . da . iung .
προσ ηλάω .	
προσ ηλέω . λ . ἡσώ . τω . ηκᾶ .	affigo . acti . accu . iungi .
προσ ηλυτος . ου . ὁ .	aducna . peregrinus . profelytus . sic . n . i actibus apostolorum legitur . iudei quoque & profelyti . & cetera .
πρὸς ἡμαί .	obsideo .
προσ ημασία . ας . ἡ .	signum .
προσ ηυεία . ας . ἡ .	mansuetudo . beniuolentia .
προσ ηυέμος . ου . ὁ .	sed uentum expositus
προσ ηυής . εἰς . ὁ . ἡ .	lenis . mansuetus . blandus .
πρὸς ἱε .	ante . antea . prius . ulterius .
πρὸς ἱεμ . /	
πρὸς ἱεσις . ἰδς . ἡ .	appositio . additio .
πρὸς ἱετος . ου . ὁ .	appositus . appendens .
πρὸς ἡκῆ . ης . ἡ .	additio . appositio .
πρὸς ἱος . ου . ὁ .	anterior .
προσ ἱεμαι .	desidero . admitto . recipio .
προσ ἱω . μ . ἰσώ . τω . ικα .	facio sedere sedeo .
προσ ἱμι .	accedo . admitto . i
προσ ἱταμαι . μ . ἡσομαι . τω . αμαι .	afficio . negligor

pſſimo. Amicus . cſor
 amiciffimus p ſyncopā
 Facilis faciliſor facillī .
 Sī īnc . per eos . & oīc
 ſit : a neutro īnc . ff
 guratur Comparatiuū
 adiectione teros : ut
 pius . pium . magis pi
 um & Superlatiuum
 adiectione τatos : ut
 Verus uerum uerior .
 ueriſſimus . Diligens
 diligēs dīligentiſor . di
 liliḡētiſſius . Si aut in
 ic . p uteros . Cōpa
 ratiuū . & p uτατος .
 Superlatiuum facit . ut
 Breuis breuiſor breuiſi
 ſſimo . Dulcis tñ duli
 cior dulciſſimus . celer
 celeriſor celeriſimus .
 Cætera aut in aliud qd
 deſinētia . ut plurimū
 i eτερος & ετατος
 faciunt . ut integer inte
 griſor integerrimus .
 Beniuolens beniuolen
 tiſor beniuolētiſſimus .
 Comperatiua genitiuo
 cōſtruitur . ut ionior .
 te ſu . n . uel fortiſor . uel

αἰσχιτὸς . φίλος . φίλτερος
 φίλτατος κατὰ συγκοπὴν
 ρᾶτιος . ρᾶωρ ρᾶτος .
 εἰ Δὲ εἰς . ης . Διὰ τὸ εὖος καὶ
 οἱς εἶναι ἀπὸ τοῦ δυοτερος
 εἰς . ες σχηματίζεται τὸ συ
 γκριτικὸν προαΐσει τοῦ
 τερος . οἷο μὲν σεβῆς εὖσε /
 βῆς εὖσε βεττερος . καὶ τὸ ὕ /
 περθετικὸν . προαΐσει τοῦ
 τᾶτος . οἷο μὲν ἀληθῆς . ἀλη
 θῆς ἀληθέτερος . ἀληθέτα
 τος . ἀκριβῆς ἀκριβές ἀκρι
 βέτερος . ἀκριβέτατος εἰ δὲ
 εἰς εἰς . διὰ τοῦ υτερος τὸ
 συγκριτικὸν . καὶ διὰ τοῦ
 υτατος . τὸ ὑπερθετικὸν .
 ποιεῖ . οἷο μὲν βραχὺς βραχὺ
 τερος βραχύτερος . ἡδὲ
 μὲν ἡδὲ ἰσχυρός ταχὺς τα
 χύων τάχιτος . ὧς δὲ ἄλ
 λα εἰς ἄλλοτε λήγοντα ὡς
 ἐπὶ τὸ πλείτερον εἰς ετερος
 καὶ ετατος . ποιεῖ οἷο μὲν σω /
 φρων σῶφρονος σῶφρονέ /
 τερος σῶφρονέτατος . ἔν /
 νοις εὐνυτερος . οὐτατος
 τὰ συγκριτικὰ τῇ γενικῇ
 συντάσσεται οἷο μὲν πρῶτερος
 σοῦ εἰ μὴ . ἡδὲ πρῶτερος . ἡ

PLATE XII.

Laskaris, Vicenza, 1489.

[Whole fount in first state. Some forms are made by erasure.]

CAPITALS.

A A[i, ii] A A B Γ Δ E E E E
Z H H H[i, ii] H H Θ I I I
I I I K Λ M N Ξ[very rare; Z
mostly used] O O O[i, ii] O O
O Π P P Σ T Y Y Y Y Ω
Ω Ω Ω Ω.

LOWER-CASE.

α[i] α[i, ii] á[2] á[22] ã
ä[i, 28, ii, iii] ä[i, ii, iii] ä ä ä
ä ä ä ä ä ä ä ä ä ä ä ä
ä ä ä.
β[2].
γ[i, ii, 6] γ γ.
δ[i, ii] δ[i, 17, ii].
ε[i, ii, 3, iii] é[i, 6, ii, 31] é[i, 14]
é[i, 2, ii, 3, iii, 16, iv] è[i, i,
ii, 12, iii] ê[i, 2, ii] ê ê ê ei[2]
ei[i] ei ei[i, ii] ei[12] ei ei[10]
ei[21] eu[3] eü eü eü[i, ii] eü.
ζ[i, 3, ii].
η[5] η η[i, ii] η[6] η η[8] η[28]
η[15] η η[i, 10, ii] η η η η
η[13] η η η η η η η η.
θ[i, 2, ii, 25] θ.
ι[i, 2, ii, 2, iii] ι ι[i, 4, ii] ι[i, 4,
ii, 7, iii, 7, iv, 8] ι[i, ii, iii] ι[2]
ι ι[5] ι.
κ[i].
λ[i] λ.

μ[i].
ν[i] ν[2] ν.
Ξ[27].
ο[2] ο[i, 4, ii] ô[2] ó[i] ò[i, i,
ii, 5] ô[i, ii] ô ô ô[27] ô.
π[i, i, ii, 2] π[i, ii] π π.
ρ[2] ρ ρ[i, ii] ρ[8].
σ[2] ç[i] σ ç σ ç σθ σπ[20]
σσ[i, ii] στ[i, 9, ii, 10].
τ[i, i, ii, 5] τ[i, ii] τ τ.
υ[i] υ[27] ú[i, 3, ii] û[4] û[3]
û û uv[28] ún ún ún ún.
φ[11]. φ.
χ[6].
ψ[12].
ω[i, 2, ii, 3, iii, 3] ω ω[10] ω[i,
28, ii] ω ω[i, i, ii] ω[i, 21, ii]
ω ω ω ω[i, ii] ω' ω[i, ii] φ[14]
φ φ φ[6] φ φ.

LETTERS WITH STROKES OVER.

α[8, 23] αι β[8] γ[24] δ ε[25] ει
η ι κ[29] λ[30] μ[22] ν[30]
ο[9] π[28] σ[14] σθ σσ τ[13, 14]
υ[23] φ χ ψ[13] ω[i].

STOPS, ETC.

Period; long comma, modern comma, the
same in the line instead of below it,
spiritus asper, question mark.

μεμόλυκα μεμόλυμαι. Ψωμ δ' ἐὰν τῶμ ᾗς ᾧ καὶ
θαροῦ παρὰ κέμενωμ; οἱ μεν προσλαμβάνουσι σ. οἷον
σβέω ἐσβέσμαι. ζέω ἐξέσμαι. κεύω κέκέλασμαι. κρούω
κέκρουσμαι. οἱ δ' ἐὼν. οἷον βασιλεύω βεβασίλευμαι. ἵπ
πέω ἵππευμαι. ὃ δ' ἐπαθῆτικός παρὰ κ. ἀπὸ τῶμ ᾗς ᾧ
γῆρόμενος, τὴν αὐτὴν παραλήγουσα ἔχῃ τῶ ἐμεργῆν
κῶ. οἷον τέτυφα τέτυμμαι. πεποίηκα πεποίημαι. πλῶ
τῶμ ἀπὸ δισυλλάβωμ τῆς α καὶ β συζυγίας τῶμ βσρ
τόμωμ. οὗτοι γὰρ ἀμαλαβάνουσι τὴν παραλήγουσα
τοῦ ἐμετῶτος. ἡ τις τρέπεται ᾗς ὁ μικρὸν ἐμ τῶ ἐμεργῆ
νικῶ παρὰ κ. ὡς ἔρηται. ἐθ' ἀττικῶ. οἷον τρέφω ἐσρε
φα ἔτραμμαι. τρέφω τέθραμμαι τρέσω τέτραμμαι. σε
σημῶται τὸ βρέχω βέβροχα βέβρεμαι. Ψὸ β τέτυφαι
ἐκ τοῦ τέτυπται τρίτου τροπῆ τοῦ π' ᾗς ψ. ἃ δ' ἐπρὸ τοῦ
τ' εὐρεθῇ σ' ἐμ τῶ τρίτῳ. τρέπεται τὸ τ' ᾗς σ. καὶ τὸ σ' ἀπο
βάλλεται. ἡ ἀποβαλλομένου τοῦ τ' γίγεται τὸ β. οἷον
γεγέλαται γεγέλασαι. τετέλεται τετέλεσαι. εἰδ' εὐ
ρεθῇ πρὸ τοῦ τ' ἀμετάβολον, τρέπεται τὸ τ' ᾗς τὸ σ' ἐμ
τῶ β. καὶ φυλάττεται τὸ ἀμετάβολον. οἷον ἔσεται ἔσαν
σαι. ἔσπαρται ἔσπαρσαι. μεμόλυται μεμόλυσαι. Ψὸ γ
τέτυπται ἀπὸ τοῦ α. τροπῆ τοῦ μ' ᾗς τῶ. καὶ ὡφῆλεμ
ἔραι τέτυμται. ἀλλ' ἐμεταβλήθη τὸ μ' ᾗς π' διὰ τὸ εὐφω
μον. Ψὸ δ' υκοῦ α τετύμμεθον ἐκ τοῦ α πληθυντικοῦ
τροπῆ τοῦ α ᾗς ὀμ. Ψὸ β καὶ γ τέτυφθον ἐκ τοῦ β πλη
θυντικοῦ. τροπῆ τοῦ σ' ᾗς ὀμ. Ψὸ πληθυντικοῦ α τετύμ
μεθα ἀπὸ τοῦ ἐμικοῦ α. Ψὸ β ὁμοίως. Ψὸ γ κοινῶς μεμ
οῦ γίμεται διὰ τὴν ἁσυνταξίαν. ὅτε πρὸ τοῦ τ' τοῦ τρί
του ἐμικοῦ προσώπου ἄλλο συμφωμον ᾗς. ἡ γοιω π. οἷ
ον τέτυπται. κ. οἷον λέλεκται. σ. οἷον ἔργαται. ἔτι καὶ
τὰ ἀμετάβολα. λ. ἔφαλται. μ μεμόλυται. ρ ἔσπαρται
ἐμ τούτοις γὰρ τρίτον προσώπον πληθυντικὸν γεμέ
bii

PLATE XIII.

Chrusoloras, Vicenza, 1490.

[Single page only. Type of 1489 trimmed and recast.]

CAPITALS.

Δ[5] Π[25] Τ[12, 18].

LOWER-CASE.

α[3] α[13] ά[2] ά[5] ά[13]
 αλ[3].
 β[26].
 γ[2].
 δ[i. 5, ii. 13].
 ε[1] ε[3] έ[3] έ[1] ελ[3].
 ζ[19].
 η[18] η[12] η[2] η[29] η[12]
 θ[19] θ[i. 5, ii. 6] θ[12].
 θ[12].
 ι[1] ι[i. 19, ii. 22] ι[3] ι[29].

κ[3].
 λ[1].
 μ[1].
 ν[i. 1, ii (roman ν) 3].
 ξ[8].
 ο[1] ò[19] ó[26] ò[i. 1, ii. 21]
 ô[6] ô[1].
 π[i. 3, ii. 18].
 ρ[2].
 σ[1] ς[8] σπ[28] σσ[19, used broken
 for οὐ in 18].
 τ[i. 1, ii. 1].
 υ[3] ύ[4] υ[3].
 φ[4].
 χ[1].
 ψ[1].
 ω[2] ώ[28] ώ[24].

ΕΠΙΥΟΜΗ ΥΩΝΟΚΥΩ
 ΥΟΥ ΛΟΓΟΥ ΗΕΡΩΝ
 ΚΑΙ ΑΛΛΩΝ ΥΙΝΩΝ
 ΑΝΑΓΚΑΙΩΝ ΟΥΝΥΕ/
 ΘΕΙΣΑ ΜΑΡΑΚΩΝΟΥΑΝ
 ΥΙΝΟΥ ΥΟΥ ΛΑΚΚΑΡΕ
 ΩΣ ΥΟΥ ΒΥΖΑΝΥΙΟΥ.

μέλλουτος τὸ ψ. ἔχει. δι
 ομ λήψω. γράψω. τύψω.
 καὶ ἐπὶ τοῦ παρακειμένου τὸ
 φ. ἔχῃ οἷον γέγραφα. τέτυ
 φα. Δεύτερον διὰ τοῦ γ. ἢ
 κ. ἢ χ. ἢ κτ. οἷον λέγω. πλ
 ἐκώ. τρέχω. τικτώ. καὶ ἐπὶ
 τοῦ μέλλοντος τὸ ξ. ἔχῃ
 οἷον λέξω. πλέξω. καὶ ἐπὶ
 τοῦ παρακειμένου τὸ χ.
 οἷον λέλεχα. πέπλεχα.
 Ὑρίτη διὰ τοῦ Δ. ἢ θ. ἢ τ.
 οἷον ἄδω. πληθῶ. ἀμύτω καὶ
 ἐπὶ τοῦ μέλλοντος τὸ σ.
 ἔχει. οἷον ἄσω. πλησῶ. ἀ
 μύσω καὶ ἐπὶ τοῦ παρακει
 μένου τὸ κ. ἔχει. οἷον πέ/
 πληκα. Ὑετάρτη διὰ τοῦ
 ζ. ἢ δ. οἷον ἐλπίζω. ὁ
 ρύσῳ. καὶ ἐπὶ τοῦ μέλλον
 τος τὸ σ. ἢ τὸ ξ. ἔχει. οἷον
 ἐλπίσω. ὁρύξῳ. καὶ ἐπὶ τοῦ
 παρακειμένου τὸ κ. ἢ τὸ
 χ. ἔχει. οἷον ἠλπικα. ὠρν/
 χα. Ἡ πέμπτη διὰ τῶν
 τεσσάρων ἀμεταβόλων. λ.
 μ. μ. ρ. καὶ ἐπὶ τοῦ μέλλον
 τος τὸ αὐτὸ περισσώμενον
 ἔχει. καὶ βραχείῃ τῇ πα/
 ραληγοίς αὖ οἷον ψάλλω

turo. ψ. habz. ut libabo
 scribam. uerberabo. &
 in preterito pfecto. φ. ut
 scripsi uerberaui.
 Secda p. γ. uel. κ. uel. χ
 uel. κτ. ut dico. iplico
 curro. parturio & in fu
 turo. ξ. habet ut dicam
 implicabo: & i prateri /
 toperfecto. χ. ut dixi.
 implicui.

Tertia p. Δ. uel. θ. uel. τ
 ut cano abundo festio.
 & i futuro. σ. habet: ut
 canam: abundabo: festi /
 nabo: & in praterito. κ.
 habet: ut abundaui.

Quarta cōiugatio p. ζ.
 uel. duo. σσ. ut spo. fo
 dio: & i futuro. σ. uel. ξ
 habet. ut sperabo fodi /
 am. & i preterito. κ. uel
 χ. ut speraui. fodi.

Quinta. per quatuor
 immutabiles. λ. μ. μ.
 ρ. & in futuro eapnenti
 circumflexam habet pe /
 nultimamq; breuem.
 ut psallo psallā. distri /
 b

PLATE XV.

Mousaios, Venice, Aldus Manutius [1495].

[Single page only. Combinations are given, not sorts, except that the contractions are separated.]

CAPITALS.

A[3] A[4] Ά[1] Δ[15] Ε[21] Ξ[3]
 [21] Θ[21] Ι[3] Μ[3] Ν[3]
 Ο[3] Ό[7] Ρ[21] Σ[3]
 Υ[3] Ω[21].

LOWER-CASE.

α[1. 5, ii. 6, iii. 11] ᾱ[14] ᾰ[1. 2, ii. 6,
 iii. 16] ᾱ[7] ᾱ[6] α[18] α[1]
 ᾱλ[9] ᾱλ[17] ᾱν[9] ᾱν[1. 13,
 ii. 16] ᾱν[6] αρ[7] ᾱρ[12] αὐ
 [5] αὐ[18].
 β[1. 9, ii. 10, iii. 10].
 γ[18] γε[16] γ[6] γ[15].
 δ[14] δα[7] δα[1] δε[16] δέ[16]
 δέ[1. 10, ii. 20] δᾱ[15] δᾱ[6] δι
 [10] δι[6] δι[5] δι[7] δο[1] δό
 [10] δρ[9] δύν[12].
 ε[10] ἐ[5] ἐ[5] ἐ[1. 5, ii. 15] ἔ[13]
 ἔ[11] ε[with horizontal stroke over]
 [9] ε[1. 2, ii. 4] ε[6] ε[1. 15, ii.
 19] ἐν[5] ἐστι[16] ευ[13] εὐ[2].
 ζ[4].
 η[1. 3, ii. 11] ἦ[3] ἦ[9] ἦ[8] ἦ[6]
 ἦ[20] ἦν[17].
 θ[3].
 ι[1. 1, ii. 1, iii. 3, iv. 4] ἰ[8] ἰ[1. 10,
 ii. 11, iii. 12] ἰ[20] ἰ[1. 11, ii. 14]
 ἱ[11] ι[with horizontal stroke over]
 [7] ι[adscript] [7].
 κ[1. 5, ii. 13] κα[1. 4, ii. 6, iii. 14,
 iv. 16].
 λ[1. 1, ii. 3, iii. 6] λλ[12].
 μ[1. 1, ii. 5] μεν[18] μέν[10] μέν
 [19].
 ν[1. 2, ii. 5, iii. 7].

ο[1. 1, ii. 3] ὀ[13] ὀ[1] ὀ[1. 16, ii.
 18] ὀ[9] ὀ[10] ὀ[1. 8, ii. 12]
 ὀ[1. 8, ii. 13] ο[with stroke over] [9]
 ου[1. 7, ii. 9] οὐ[1. 10, ii. 14] οὐ
 [15] οὐ[16] οὐ[5].
 π[7] πα[3] πά[11] πε[1. 17, ii. 19]
 πη[5] πι[13] πῖ[9] πο[1. 3, ii. 13]
 πῶ[13] πρ[2] πω[8].
 ρ[5] ρι[with stroke over] [4].
 σ[1. 4, ii. 11] ς[1. 1, ii. 1] σα[3]
 σε[12] σθα[1. 11, ii. 16] σθε[19]
 σθέ[7] σθέ[14] σι[14] σι[15] σο
 [4] σπο[1] στ[12] στα[6] στέ
 [14] στο[4] σω[12].
 τ[1. 5, ii. 6, iii. 16] τα[3] τά[18]
 τᾱ[7] τᾱ[8] τε[7] τέ[4] τὲ[4]
 τᾱν[3] τι[8] τί[5] τι[10] το[1. 3,
 ii. 17] τό[7] τὸ[1. 3, ii. 10] τὸ[1]
 τ' ὀ[10] ττ[2] τω[12] τῶ[16] τῷ
 [4] τῶν[? 4].
 υ[1. 1, ii. 5, iii. 13] ὕ[1. 8, ii. 13]
 ὕ[1. 11, ii. 19] ὕ[1. 9, ii. 21] υν
 [10] ὕν[14].
 φ[4] φι[17] φί[19].
 χ[18] χρ[11] χω[11].
 ω[1. 1, ii. 7] ὦ[6] ὦ[6] ὦ[1. 4,
 ii. 8, iii. 13] ὦ[19] φ[20] φ[20].

CONTRACTIONS.

ας[12] εἰν[19] να[5] οἰς[5] ον[6]
 ὄν[8] ος[18] ου[7] ους[12] ὠν
 [12] ὦν[? 4] ὠς[17].

STOPS, ETC.

Smooth breathing [5], comma [4], period
 [8], hyphen [17], reversed comma [before
 οὐ, line 10; and before αὐ, line 19].

Ἄλλος ὁ Ῥωμαῖος τοῖς ἀπουδαίοις

ὡς πρῶτον

ΜΟΥΣΑΙΟΝ τὸν παλαιότατον τριητὴν ἡδέλῃσιν
προοιμιάζειν τῷ τε Ἀεῖσο τέλει, ἃ ἴσοφῶν τοῖς
ἑτέροις αὐτίκα δὲ ἐμὲ ἐνλυπώσομεν τῷ τε ἑνὶ αὐ
τὸν ἡδύσον ἄμα, καὶ λογισάμεν καὶ μάλιστάως ἀνείδειν
τετὰ πρῶτον τῷ Οὐτὶ δὲ, δανειθέντα δαιμονί
τῷ ὄντι καὶ ἐφύως, καὶ ὅπως αὐτὸ ἐμὴ μήσατο ἐν ταῖς
ἡρώεσσι καὶ λεγόμενον πρὸς αἰγύλῃς ἐπιστολαῖς, λαμβά
νετο ἡ τῆς τῆς βελίδιον, ὃ πρὸς καμνύτοι, δὴ τε δὲ
παρὰ χήματα, ἐνέχων αὐτὸς πρὶς εἰς ὅμιν πάσας
πὰς τῆς ἑλλήν ἀρίστους βίβλους, καὶ ὅντως εἰδώσε τε δώσω.
ὅτι οὐδὲ ἐχὼ ἐνλυπώσων καὶ χημάτων πολλῶν, π
σένετε τοῖς ὅκα κινδύνως ἐμπείρασθαι σὺ καὶ πάν
των μάλιστάως λέγοντι Δημόθεν, Δεῖ δὲ
χημάτων ἀλὺν τὸ ὅτι ἐν δὲ γλυκύτῃσι δειόντων, ὅν
μὲν φιλοχηματῶν ἔχον, μαῖνον δὲ τοῖς τοῖς ἀπε
χανόμεν, λαυτάς τε εἰρηκας, καὶ τοῖς χηματῶν ἀλὺν ὅτι
νατὶ ὡς πρῶτον ὑμεῖς μὲν ὑπερβαλόντως εἰώθετε αὐ
τοῖς ἡγεμῶν μόχθῳ καὶ δαπάνῃ, περὶ ἡκούτες διατε
λοῦμεν.

ἘΡΡΩΣΘΕ,

α,

PLATE XVI.

Greek Letters, Venice, Aldus, 1499.

[Single page only. Combinations are given, not sorts, except for the contractions.]

CAPITALS.

N[21] Π[22].

LOWER-CASE.

α[i. 1, ii. 4] ᾱ[i. 5, ii. 11] ᾰ[i. 1, ii. 10, iii. 23] ᾱ[i. 1, ii. 13, iii. 14] ᾰ[i. 3, ii. 23] ᾰ[18] α[i. 2, ii. 2] ᾰλλ[19] ᾰλλ[20] αν[4] αν[4] αν[12] αν[2] αρ[20] αυ[23] αυ[1].

β[i. 13, ii. 19].

γ[i. 5, ii. 22] γα[8] γά[3] γάρ[i. 1, ii. 9] γε[7] γέ[12] γή[17] γί[11] γκ[10] γο[i. 24, ii. 26] γό[26] γρ[23] γυ[15].

δ[21] δα[2] δε[2] δέ[6] δέ[i. 4, ii. 10] δει[i. 2, ii. 10] δεύ[15] δη[7] δή[3] δι[13] δο[1] δό[6] δρ[11] δυ[25] δώ[24].

ε[i. 2, ii. 6] ἐ[i. 4, ii. 5, iii. 17] ἐ[17] ἐ[i. 2, ii. 4] ἔ[1] ἔ[13] εἰ[3] εἰ[3] εἰ[4] εἴ[i. 19, ii. 20, iii. 21] εἶ[7] εἷ[20] εῖν[14] ἔξ[8] εὐ[12] εὐ[13] εὐ[16] εὐ[18].

ζ[2].

η[2] Η[21] ἦ[i. 5, ii. 25] ἦ[1] ἦ[i. 4, ii. 5] ἦ[26] ἦ[19] ἦ[21]. θ[14] θα[23] θά[4] θέ[16] θέ[23] θί[24] θυ[8].

ι[i. 3, ii. 3] ἰ[9] ἰ[i. 8, ii. 11, iii. 12]

ἱ[i. 12, ii. 13] ἱ[24].

κ[i. 1, ii. 1, iii. 14] καί[i. 1, ii. 11, iii. 12, iv. 22] κατὰ[10].

λ[i. 1, ii. 2] λλ[2].

μ[i. 1, ii. 15] μέν[4] μέν[3] μέν[3].

ν[i. 1, ii. 5, iii. 11].

ξ[i. 3, ii. 14].

ο[i. 1, ii. 3] ό[23] ό[i. 1, ii. 9, iii. 10, iv. 15] ό[i. 2, ii. 8, iii. 10] ő[i. 3, ii. 4] ő[8] ő[i. 2, ii. 2] ő[5] ου[i. 4, ii. 13] ου[9] ού[15] οὐ[19] οὐ[11] οὐ[12] οὐ[16].

πα[i. 17, ii. 24] πά[14] πα[i. 6, ii. 19] παλ[i. 9, ii. 15] παρ[4] πε[i. 5, ii. 12] πέ[i. 24, ii. 25] πει[12] πε[5] πε[6] περ[19] πῖ[24] πο[i. 10, ii. 13] πό[11] πò[16] πρ[9] πώ[13].

ρ[i. 6, ii. 6] ρι[1] ρί[2] ρί[12]. σ[i. 4, ii. 6, iii. 9] σ[i. 1, ii. 1, iii. 2] σα[3] σε[24] σει[16] ση[8] σθα[i. 4, ii. 20] σθα[25] σθε[12] σθῆ[26] σῖ[5] σί[4] σο[7] σοο[21] στ[22] στε[2] στη[11] στί[1] στω[20] συ[25] σύ[10] σύν[21] σχε[24] σω[15] σῶ[20].

τ[2] τα[i. 1, ii. 1] τά[7] τὰ[1] τᾶ[14] ται[6] τε[1] τέ[i. 6, ii. 7, iii. 8] τῆ[4] τῆ[10] τήν[3]

τῆς[6] τῖ[11] τῖ[2] τῖ[14] το[1. 6,
 ii. 14] τὸ[3] τοῦ[8] τρ[1. 8,
 ii. 10] ττ[18] τυ[12] τύ[20]
 τὺ[11] τω[5] τῷ[1. 1, ii. 11].
 υ[1. 2, ii. 3, iii. 17, iv. 17] ὕ[1] ὕ[1. 2,
 ii. 17] ὕ[1. 5, ii. 7, iii. 24] ὕ[6]
 ὕ[14] ὕ[8] ὕ[9] ὕν[25] ὕς[6].
 φ[1. 1, ii. 3, iii. 14, iv. 21].
 χ[18] χα[7] χε[6] χεῖ[8] χη[11]
 χό[22] χρ[1] χῶ[12].
 ω[1. 4, ii. 5, iii. 24] ὦ[1. 10, ii. 22]

ὦ[8] ὦ[1. 5, ii. 13, iii. 19] ὦ[1. 1,
 ii. 6] φ[22].

CONTRACTIONS.

ov[1. 15, ii. 17] ους[15] ται[7].

STOPS, ETC.

Comma[1] colon[1] period[4] 3 hy-
 phens[5, 20, 24].

πα μόνον, ἐστὶ γὰρ αὐτῶν κοινὰ, ὅτι τὰ φιλῶντος χεῖματα. ὥς τε οὐκ
 ὁδὸν κλειανέτη, τί αὐτὸν μέλλοις. οὐ γὰρ οἶμαι δεῖν, κοινὸν τοῦ ἐστέρου
 εἶναι εἰς τὸν γάμον, τὴν φιλοφροσύνην μὲν ἀφ' ἑνὸς ὅσα μὲν γὰρ ἐκ δὲ
 εἰς τὴν ἐκείνου πρὸς αὐτὸν ἀναβαλέσθαι, μὴ φθύνειν μὲν. ὅσα δὲ αὐτῇ
 κατεπείγῃ φύσις ἀκόντων ἡμῶν, ἀποδόν τε, μὴ περιμένειν μὲν. εἰ
 πρὶ τοῦ ἡμετέρου οὐκ ἀναδέχεται καιροῦς, ἢ φιλῶντος ἔρα
 τὰ δὲ φιλοφροσύνη μὲν ἔργῳ τοῦν τοῖς ὅσοις πατήρα ἐκ δὲ ἔργῳ
 αὐτῶν οὐκ ὁρᾷ οὐδὲ εἰς γάμον. οὐ δὲ τὸ κατέχευε δικαιοσύνην
 παρὰ τὸν νόμον, τὴν παῖδα, οὐδεμία πρόφασις. ἔτι γὰρ οὐκ ἔστι αὐ
 τῇ πατρίδι εἰς τὸ παρὸν δεῖν, ὥς ἀποδόν. οὐ γὰρ πάλαι ἀνάγκη,
 ἢ μεγίστη φιλότης ἀκόντι τῷ πατρί, προσνέμειν οἷον δεῖν, ἢ πρὸς αὐτὴν
 τὴν μητέρα, ἢ, ἐάν γ' αὖτε πειθεῖται ἢ περὶ ἀποδόν δυνάμει, ὅτι
 εἰς οὐκ ἔστι οὐκ ἔστι βλάβη. παλλὰ γὰρ ἔπειτα καλῶς, δὴ καὶ
 φιλοφροσύνην πρὸς αὐτὴν, ἐν τῷ τῶν πᾶντων κοινῶν ἐργάσθαι ἀγαθόν,
 ὅτι καὶ ἐν σωφρονισμῷ, ὡς οἱ οἶσιν, καὶ δύνανται κατὰ νόμον τὴν πατρί
 δα. τὰ μὲν γὰρ χεῖματα τοῖς δικροῖς ἐμὸς, ὅταν ἐθέλῃς πρὸς αὐτὴν
 εἰδέναι, ἐπὶ τῷ δεῖναι, πρὸς τὸν γάμον, ἐκείνου ὑπερβῆται. σὺ μὲν
 ἀβλάτ, πρὸς τὴν φιλίαν. ὅτι φιλοφροσύνη δὴ καὶ μὲν ἐλθεῖν εἰς τὸν γάμον. ἢ
 πρὸς αὐτὴν μὲν, εἰς ἐκείνον ἡξίοντα τὰς παιδὸς χεῖρας. ἢ τὸ
 σῶν ἐκείνῳ εἶναι, ὅτι πρὸς αὐτὸν, ὅτι αὐτὰ μὲν ἔσονται μὲν τῶν
 δὲν ἀπὸ τῶν ἢ πρὸς αὐτὸν φιλοφροσύνη.

Νικηθεὶς.

εἰ Πεισείλα μὲν σὺν χόρῳ, ὡς κείνου πρὸς τὸν ἐλεγεῖν. καὶ τὸν
 πρὸς τὸν ὑπερβῆται. ὡς καὶ γὰρ φάν. ὅτι, ἀσμενος ἡμῖν φιλῶν
 τοῦ φύσεως ἐπιδόσθαι ὑπερβῆται, παρὰ μὲν δυνάμει ἢ γὰρ ὑμῖν
 ἰστέον αὐτῶν τὸν πίνουσι τὴν σφίαν. ἢ μὲν οὐκ συμφορὰ, δυνάμει
 γὰρ ὁρᾷ, ὅτι βαρυντέρα, ἢ ὡς τε λόγῳ ἐπιδόσθαι φιλῶν. ἐπεὶ δὲ τ

μ ιιιι

PLATE XVII.

Dioskorides, Venice, Aldus, 1499.

[Combinations found in the facsimile only.]

CAPITALS.

A[40] E[7] I[11] K[10] O[3]
P[34] Σ[41] Ω[4].

LOWER-CASE.

α[i. 1, ii. 2] ᾱ[7] ᾱ[i. 4, ii. 5] ᾱ[20]
α[8] ᾱ[12] αι[2] αν[8] ᾱν[8]
ᾱν[25] ασ[21] αυ[42] αὐ[11].
β[i. 1, ii. 6].
Γ[11] Γα[19] Γᾱρ[33] ΓΓ[43] Γε[23]
Γέ[2] Γ[9] Γκ[27] Γλ[11] Γο[i.
16, ii. 41] Γρ[43].
δ[17] δα[7] δε[15] δέ[6] δέ[i. 1,
ii. 3, iii. 5] δι[8] δι[21] διὰ[22]
δο[6] δρ[21] δυ[6] δω[23].
ε[2] ἐ[16] ἐ[32] ἐ[12] ἔ[9] ἔ[21]
ει[i. 4, ii. 5] εἰ[21] εἰ[10] εἰ[i.
21, ii. 31] εἴ[35] εἴ[6] ἐν[13]
ἐρ[18] ἐρ[8] ἐστ[6] ἐστ[11]
ευ[4] εὐ[34] εὐ[22].
ζ[i. 5, ii. 17].
Η[i. 1, ii. 2] ἥ[6] ἥ[i. 1, ii. 24] ἥ[i.
16, ii. 29] ἥ[8] ἥ[i. 4, ii. 22] ἥ[8]
ἥ[12] Ην[16] ἥν[3].
Θ[10] Θέ[14] Θύ[34].
ι[5] ἰ[1] ἰ[i. 8, ii. 17] ἱ[i. 15, ii.
25, iii. 26].
κ[9] κα[2] καλ[i. 1, ii. 16] κί[4]
κί[13] κο[15] κό[i. 4, ii. 19]
κω[25].
λ[1] λλ[23] λλ'[7].
μ[2] μέν[2] μέν[26] μέν[14] μι[32].
ν[1].

Ξ[3] Ξι[18] Ξί[1].
ο[i. 1, ii. 1] ό[13] ό[i. 2, ii. 3] ό[33]
ό[5] ό[4] οἱ[15] οἱ[42] οἱ[25]
οἱ[26] οὐ[7].
πα[6] πε[i. 8, ii. 20] περ[5] πη[36]
πι[2] πλ[6] πν[14] πο[i. 14,
ii. 16, iii. 23] πό[13] πρ[1] πτ[4].
ρ[i. 1, ii. 6] ρ[36] ρι[8] ρι[20].
σ[i. 9, ii. 23] ς[i. 1, ii. 3] σαν[17]
σε[35] σει[13] σθ[17] σθα[21]
σι[1] σί[12] σκ[17] σμ[7] σπέ[13]
σπι[37] σσα[11] σσε[9] σση[10]
σσή[31] σσί[36] σσο[43] στα[5]
στε[20] στι[1] στι[27] στό[22]
στρ[25] σύ[7] συν[42] σύν[16].
τ[41] τα[9] τά[6] τὰ[3] ται[7]
ταί[37] τε[1] τέ[2] τέ[38]
τᾱ[15] τᾱ[39] τᾱ[8] τᾱν[2]
τᾱς[11] τι[i. 4, ii. 13] τῖ[i. 8, ii. 10]
το[i. 8, ii. 8, iii. 26] τὸ[14] τρ[3]
τῶ[20] τῷ[26].
υ[13] ὕ[3] ὕ[26] ὕ[i. 1, ii. 38]
ὕ[21] ὕ[i. 8, ii. 20] ὕ[19] ὕ[3]
ὕ[35] ὕπερ[35].
φ[3] φί[1].
χ[36] χαι[2] χεί[36] χθ[34] χο[i.
14, ii. 42] χρ[12] χῶ[29].
ψ[22].
ω[i. 1, ii. 21] ὦ[13] ὦ[3] ὦ[10]
ὦ[2] ὦ[i. 5, ii. 5] ὦ[40] φ[7]
φ[32].

STOPS, ETC.

Comma[1] colon[1] period[9] hyphen[4].

λήτερον· ἰεὺς δὲ καὶ βούπρηστις, σιλωάων
 γέννη μελανῶν· πινόμηνος δὲ, κατέχει πύ-
 ροφω, ὡς ἰξός· Οὐλοφόνον ὅ, τὰ οὐλά-
 βλάπτον, ἢ ὅλον φονύτης· ὠκυμοει-
 δὲς δὲ, ὁ ποδὶς μέλισσας ὡκυμον ὀρῶ· ὠκυ-
 μον δὲ ὅστις εἶδος βοτάνης, παραπλήσιον ἢ δὲ
 ὁσμῶ· ἀλλ' ὅστις δὲ σαύς ὅστις· ἐμπαλάρεται ὅ
 ἦτορ, ἀντὶ τοῦ περιφύρεται τῇ διανοίᾳ, ἢ
 τοι παράσσεται, καὶ ἐμπαληκτοσ γίνεται·
 καὶ λυσσηθεὶς, ἀντὶ τοῦ μανείς, κατὰ τῶ-
 γει πύρρως αὐτοῦ· ἰεὺς, γένος ὅστις πρὸ
 σίλφης· ἐστὶ δὲ τῇ χρυσαῖ μέλαν· τῇ δὲ ὁσμῇ
 αὐτῇ πόσει, ὁμοία ὡκυμον ἀσπράγμα· ἢ τοι
 βασιλικῶ πινώ ἔχον· ποδὲν ὅ, τὸ μὲν φάρ-
 μακον τοῦτο, πύρρως αὐτοῦ οἶδε· φλέ-
 γον αὐτῇ, καὶ παραφροσύλῃ ἐμποιῇ-
 (γενέσθαι αὐτῇ)· τὸ παρασκυλάζειν δὲ πύρ-
 ρως πύρρως, κατέχει ἐμφραξεν ὅρ-
 γασθῆναι οὐρου τε, καὶ κόπρου· κατὰ πνί-
 γον δὲ τὸ πνέυμα περὶ τὰς σενὰς τῶν ἐντέ-
 ρων ὁδῶν, εἰλεῖσθαι ποιεῖν, καὶ δὲ ἔσθρασ-
 τόφους παρασκυλάζει, ἢ λῆ· σόματος ὅρ-
 γαν δὲ δίδωσι· τοῦτο τὸ ποτὲν, πολλὰ κισ-
 ἐμῇν παρασκυλάζει πύρρως, παραπλή-
 σιον τοῖς ἀνδρὶ σφάκων ὡς τῶν ὁρνέθων·
 ὅτι, ὅτις ἀτελέσι, καὶ ἐν τῷ ὑμῶν οὐσι· το-
 τέστι, νεωστὶ τεθρομυβωμένοις αὐτοῖς ἐγκά-
 τοις αὐτῶν, καὶ ὑμῶν μόνους ἔχουσιν·
 Εἰ κἢ· ἀδιαχώριστον φησι γίνεται εἰ κἢ καὶ
 αὐτοῦ λόγου, αὐτοῦ ἐν εἰλούμηνον τὸ πνεῦμα
 τόφον ἀποτελεῖ· ἐν ὀλίγῳ δὲ φουασήμα-
 τι ἐλίσσεται· τουτέστιν, ἐν μικρῷ πνέυμα-
 τι παράσσεται· μικρὸν γὰρ τὸ πνεῦμα ἀπολ-
 λύει· Ρόχθω δὲ, τῷ ἀναφρομύνῳ δὲ τῷ
 πνέυματι· οὐ πύρρως ὡς ὁλῶν εἴησιν ἔχον
 τῇ, ἢ ἡχώ θαλασσῇ, ἢ ὅστις ῥόχθος ἐπὶ χεῖ-
 ταῖς ἀπλάσι· πολλὰ κισ δὲ φησι ταῖς ἔχον
 ταῖς τοῦ ὀλύμπου ὁμοιούμηνος, ποτὲ δὲ
 τοῖς ἡχῇς τῆς θαλάσσης παραπλήσιος ὡν·
 ἄνομβρητος ὅ, πολλοῦ μέρου, ὡς φησιν
 ὁμηρος, Οὐδέ ποτ' ὁμβρῶ δύνειται· Σβύτο
 μῆνι, ἐλαυνόμενῳ, ἢ σιωχόμενῳ· οἱ γὰρ
 ἀσπράφοι, κατὰ σφάχα ἀπολλυμένῳ·

XVII. VENICE, ALDUS MANUTIUS, C. 1500.

PLATE XVIII.

Aesop, Reggio, 1497.

[Accented forms which appear to have separate or moveable accents are marked with an obelus, and each occurrence of such form is noted.]

CAPITAL.

Π [1].

LOWER-CASE.

α [i. 10, ii. 13] ᾱ [6] †ᾱ [23], †ᾱ [20, 23, 25] †ᾱ [10, 15] ᾶ [18], ᾷ [25].
β [9].
γ [3].
δ [i. 7, ii. 12].
ε [1] †ε [7, 12, 17] ἐ [i. 13, †ii. 1, 18, 22] ἐ [i. 21, †ii. 8] ἔ [i. 7, †ii. 14, 23] εἰ [7] †εἰ [21] †εἰ [14, 16] †εἰ [8] †εὐ [5].
η [7] ἦ [8] ῆ [8] †ἦ [3, 13, 19, 21, 22] †ἦ [21] ῆ [10].
θ [8] †θ [17].
ι [i. 1, ii. 1] ῑ [18] ῒ [12] †ι [1] †ι [6, 19].
κ [2] καὶ [i. 1, ii. 5].

λ [2].

μ [i. 1, ii. 3].

ν [i. 1, ii. 6].

Ξ [8].

ο [1] ὀ [19] ό [6] †ό [3, 15] ὅ [14].

π [i. 1, ii. 3] πο [16] πρ [9].

ρ [i. 1, ii. 5].

σ [4] ς [1] σΗ [23] †σθ [14] στρ [16].

τ [7] τΑ [14] τε [8] το [6] τΩ [16].

υ [i. 2, ii. 4, iii. 8] †ύ [16, 22] ύ [2]

†ϗ [9, 15, 18, 20, 23] υν [11] †ϗν [6].

Φ [7].

Χ [i. 18, ii. 20].

ω [i. 12, ii. 13] †ώ [5, 19] †ώ [10,

11, 12, 12].

STOPS, ETC.

Grave accent [1, 7, etc.] comma [5]
colon [12] period [17].

Περὶ ποιμένος καὶ
λύκου

οἰκὴν νεογνῶν
τῷ λύκῳ σκύμνον
δύω μὲν καὶ
ἀμελόμενος, σὺν τοῖς
κυσὶν ἔτρεφεν. ἐπειδὴ
δὲ ἠνέκνηθη, ἔπειτα
λύκος πρόβατον
ἤρπασε μετὰ τῶν
κυνῶν καὶ αὐτὸς
ἐδίωκε· τῶν δὲ κυνῶν
μηδυνάμενων
ἔθ' ὅτε καταλαβῆν
τὸν λύκον, καὶ διὰ ταῦτα
ὑποστρεφόντων
ἐκείνος ἠκολούθει.
μέχρις αὖ τοῦτον
καταλαβὼν διὰ δὴ
λύκος συμμετάσχῃ
τῆς θήρας. εἰ δὲ μὴ
ὑπέστρεφεν, εἰ δὲ μὴ
λύκος ἐξώθεν ἄρπάζῃ
πρόβατον, αὐτὸς
λαθρὰ θύωμ' ἅμα

De Pastore &
Lupo.

p Astor nouellum
Lupi catulum
inueniens &
accipiens cum
canibus nutriebat. postquā
autem auctus est. si quando
lupus pecudem
rapuit. cum
canibus & ipse
insectabatur. at canibus
non ualentibus
aliquando cōpræhendere
lupum. & propterea
reuertentibus
ille sequebatur.
donec utiq; hunc
cōpræhendens tanquam
lupus participet
uenationis. postea
reuertebatur. si autem non
lupus extra rapuisset
pecudem. ipse
clam interficiens simul

XVIII. REGGIO, D. BERTOCHUS, 1497.

PLATE XIX.

Phalaris and Aesop, Venice, 1498.

[The whole fount as it occurs in these two books. Sorts, not combinations, are shown; but the combinations occurring on the page here reproduced are added in parenthesis after the sorts of each letter.]

CAPITALS.

24 letters.

LOWER-CASE.

α[i. 1, ii. 1] ά αι[i. 2, ii. 6] αις αλλ
αν[2] αυ[13]—(ά[i. 2, ii. 8] ά[i.
11, ii. 15] ά[i. 4, ii. 15] ά[17]
αι[6] ά[3] άν[1] αν[25] άν[1]
άv[5] άv[16] αυ[13] αυ[14]).
β[i. 1, ii. 3, iii.]
γ[i. 25, ii.] γα[8] γαρ γάρ[i. 1, ii. 13]
γγ γε[21] γει[19] γεν γη[6]
γι[25] γν γο[9] γρ γυν[29] γω
—(γά[4] γ'έ[26] γει[7] γή[6]
γι[25]).
δ[i. 1, ii.] δα[7] δαι δας δε[11] δέ
δει δη[14] δι[3] δο[3] δρ δυ
δω—(δέ[3] δέ[2] δι[4] δι[2]
δι[11]).
ε[i. 1, ii. 2] ει[i. 8, ii. 10, iii. 16, iv. 17]
εν έπι[2] επ έστι έστι[4] ευ[27]
—(έ[i. 1, ii. 14] ε' [26] έ[i. 7, ii. 13]
έ[7] έ[28] έ[29] ει[i. 16, ii. 17]
εί[i. 1, ii. 18] ει[i. 6, ii. 8, iii. 9]
εί[21] έπι[2] ευ[27] εύ[28]).
ζ[i. 10, ii. 16].
η[i. 2, ii. 4] ην[7]—(ή[i. 1, ii. 6]
ή[10] ή[i. 3, ii. 4] ή[5] ή[9]
ή[9] 'ή[14] ήv[7]).

θ[2].
ι[i. 3, ii. 4]—(ι[i. 2, ii. 5, iii. 8] ι[22]
ι[i. 10, ii. 14] ι[6]).
κ[i. 2, ii. 3] καλ[i. 3, ii. 7] κατά.
λ[i. 1, ii.] λα[i. 16, ii.].
μ[1] μεν[i. 1, ii. 18, iii.]—(μέν[2]
μέν[1]).
ν[i. 1, ii. 3, iii, iv] νυν.
ξ[i. 9, ii. 17].
ο[i. 1, ii. 1] ου[4]—(ό[1] ό[9] ό[10]
ό[12] οι[4] οί[23] οί[15] ου[9]
ου[20] ου[4] ου[22] ου[6] ου[24].
π[i. 2, ii. 6] πα[2] πε[5] πει[19]
πη πι πλ[2] πο[i. 3, ii.] ππο πρ[1]
προ[13] πτ πω[i. 9, ii. 27]—(π' [1]
πά[4] πά[3] πέ[19] πε[20]
πε[9] πό[7] πρό[23] πρό[5]
πώ[27]).
ρ[i. 1, ii. 2] ρι[12].
σ[i. 25, ii. 10]. ς[i. 1, ii. 3, iii. 5, iv]
σα[1] σαν[16] σε[4] σει ση[22]
σθ[6] σθαι σι[23] σο[21] σπ σσ
στ στα σται στε[8] σται στη[25]
στι στο[3] στυ στω συ[7] σχ[3]
σخر σω[6]—(σ[18] σό[5] σύ[7]).
τ[i. 4, ii.] τα[i. 10, ii. 13] ται[3]
τε[12] τει τη την[2] της τής[4]
τι[6] το[i. 4, ii. 8] τó[5] τοú[8]
τρ[22] ττ τω[11] τώ[i. 15, ii. 25]
τών—(τά[13] τά[15] τά[3])

χῶς· ἡ μὲν γὰρ ἐπὶ ἀνδρὶ χερθαία, χρόνους πρὸς λαμβάνουσα,
 παλαιοῦ ἀρετῶν· ἡ δὲ ὑπὸ παιδὶ παρ' ὧσαν μηχανομυθὴ καὶ παρθεῖν
 αἰτιαβολὴν ἡτᾶται· πᾶσι γὰρ ἀνθρώποις ἀχρὶς ὁ δέσνεται, ὡς
 ἡ δὲ ἀχρὶ παρὰ τοὺς ἡρώσεως χρόνους θυγὰ Τηροὶ κερᾶσα· πᾶ
 ἅ γὰρ ἐχρὶν ἐπὶ ἐκείνης ρίον, ὡς περὶ τὸν σὺν, πρὸς ἀνδρὰ ἐπα
 νειοθαρῖσας μὲν ἔν ἀντὶ φιλοδῆμον παρὰ θυμὸν ἀνὴρ γῆ, παῖ
 δα ἔχειν, ὡς ἐκείνος καὶ σὺ ἐγείνασθε· ἄχ' ἴλιον δὲ, διὰ πόθους
 χεῖρ τοῦ θυγᾶ τέρα ἂν περὶ ἐν γῆ μωρ· καὶ οὐχ ὅμοιον τῷ μετὰ λί
 γον ἥξοντος ἂν φαιρείσθαι ἀνδρὸς, ἢ ἔμῃ πω πῆραν τίς ἐχρησ
 καὶ ζῶν ἦσαν τοῖς ἡρώσεως ἀμαζομυθὴ νόμοις· ὅταν δὲ, μὴ
 δὲ ἐκμηκνύον γονέων, μὴ δὲ δὴ ἐνδεῖαν χερμὰς ὦν, ὡς περὶ νῦν,
 καὶ μετὰ λης ἂν Τυχᾶς τεκμηρίον τῷ το, ὁ καὶ δαμῶς καποιω
 νίξας κλεαγνέτη· περὶ τὰ λαυτον γὰρ περὶ καὶ τε λιπὼν ἀντὶ τῆς
 λοδῆμος ἐκπαλέων παρ' ἡμῖν· καὶ ἔχ' ἴαυτα μόρον, ὅτι γὰρ αὐ
 ῶ κοινὰ, καὶ τὰ φαλαειδὸς χερμὰτα· ὡς τε σκῶδα κλεαγνέ
 τη, τί ἀν' ἐμοῖς· ἔγ' οἶμαι δεῖν, μηδενὸς ὑπερβουσαν εἰς τὸν γῆ
 μωρ, τὴν φιλοδῆμον μὲν ἐν ἀφίξι· ὅσα μὲν γὰρ εἰς τὸν σὺν
 ἐκείνους παρὰ σὶ ἀνὰ βλάσθαι, μὴ φθάνω μὲν· ὅσα δὲ ἀντὶ
 κατεπέγει φύσις ἀκόντων ἡμῶν, ἀνδρῶν τε, μὴ περὶ μὲν ὡμῶν.
 ἐπεὶ τοὺς ὑμετέρους ἐκ ἀνδρὸς καὶ αἰρᾶς, ἢ τῶ παιδὸς ὥρα.
 τὰ χαρὰ φιλοδῆμος μὲν εἴρεται τοσούτοις, ὅσοις πατέρων εἰ
 κὸς εἴρεσθαι, ἐξ ὧρ θυγᾶ δὸς ἔσθης εἰς γῆμον· σὶ δὲ τῷ κατε
 χερμὸν καδὲ παρὰ τὸν νόμον τὴν παῖδα, ἔδ' ἐμὶ ἀπὸ φασε· οὐ
 γὰρ ἔσθης ἀντὶ παρὸς εἰς τὸ παρὸν δεῖ, ὡς ἀνδρὸς· σὺ δὲ κατὰ
 πολλαὶ ἀνὰ Γκας, καὶ μετὰ τὴν Τυχᾶς ἀπὸντι ὡς παρ' ἱ, περὶ
 νὲ μὲν οἱ δὲ δεῖν, καὶ παρὸν τὴν μητέρα, ἔν, ἐάντε μοι περὶ εἴ
 σα, καὶ περὶ ἀνδρὸς ἂν Τυχῶς, καὶ περὶ θυγᾶ δὸς ἀπὸ πῶς βου
 λάσθαι· πολλαὶ γὰρ καὶ ἐπερὶ καλῶς, δὴ χαρὰ φιλοδῆμου παρὰ ξα
 σα, ἐν τῷ τᾶντι πᾶν ὦν κοινὸν ἐργᾶσθαι ἀχρὸν, καὶ γυναικὶ σὺ

PLATE XXa.

Soudas, Milano, 1499.

[Combinations, not sorts. The facsimile shows all of the type known.]

LOWER-CASE.

α[i. 1, ii. 2] ᾱ[10] ᾱ̇[15] ᾱ̈[1]
 ᾱ̄[4] ᾱ̅[14] αι[14] αῖ[12] αν[16]
 ᾱν[12] ᾱν̄[1] ας[12] ᾱς̄[i. 3, ii. 6]
 αὐ[6] αὐ̄[4].
 β[i. 2, ii. 2, iii. 5].
 γ[12] γα[4] γάρ[i. 4, ii. 11] γε[7]
 γι[15] γο[1] γρ[7] γῶ[17].
 δ[1] δα[11] δαῖ[15] δέ[6] δι[4]
 δο[9] δὸ[18] δρ[15] δύ[8].
 ε[i. 3, ii. 5] ἐ[i. 3, ii. 13] ἐ̇[8] ἐ̈[i. 1,
 ii. 7] ἔ[17] ἔ̇[14] εἰ[i. 5, ii. 13]
 εἶ[3] εἷ[13] εἴ[i. 8, ii. 9] ελ[13]
 ἐλλ[15] ἐλλ̄[3] ἐξ[11] ἐν[11]
 ἐς[3] εὐ[8] εὖ[17].
 ζ[14].
 η[i. 2, ii. 3] ἦ[i. 10, ii. 17] ἡ[2]
 ἦ̄[12] ἦ̅[3] ἦ̇[10].
 θ[i. 2, ii. 16].
 ι[i. 2, ii. 4] ἰ[15] ἱ[5] ἰ̇[9] ἰ̈[7]
 ἰ̄[3] ἰ̅[9] ἰ̇̇[7].
 κ[3] καὶ[i. 2, ii. 7].
 λ[1] λ̇[10] λλ[6].
 μ[1] μεν[4] μέν[5] μὲν[16].
 ν[i. 1, ii. 3].
 ο[i. 1, ii. 1] ὀ[13] ὁ[10] ὁ̇[11] ὀ̈[8]
 ὀ̄[5] ου[14] οὐ̇[4] οὐ̈[7] οὐ̅[18].
 πα[6] πά[6] παρ[7] πε[11] πέ[4]
 πεῖ[5] περ[5] πλ[8] πο[i. 3, ii. 7]
 πό[16] πω[5] πώ[2] πῶ[6].
 ρ[3] ῥ[3].
 σ[4] ς[i. 1, ii. 1, iii. 2] σα[8] ση[18]

σθ[9] σι[9] σκ[8] σο[12] σό[4]
 σπ[15] σσ[13] στα[9] στε[1]
 στή[6] στι[4] στί[5] στο[7] συ[12]
 σφ[10] σω[4] σῶ[18].
 τ[4] τα[5] τά[3] τὰ[i. 14, ii. 16]
 ται[10] ταῖ[7] τε[5] τέ[5] τη[5]
 τῆ[6] τήν[5] τῆς[3] τι[18] τί[18]
 τῖ[1] τὸ[i. 6, ii. 13] τρ[18] τυ[5]
 τω[8] τῶ[13] τῶν[15].
 υ[1] ὕ[7] ὕ[3] ὕ̇[1] ὕ̈[10] ὕ̅[8]
 ὕν[4] υς[4].
 φ[1] φ̇[14].
 χ[4] χα[3] χά[17] χε[8] χῆ[9]
 χρ[9].
 ψ[5].
 ω[3] ὠ[5] ὠ̇[8] ὠ̈[9] ὠ̅[13] ὠ̇̇[i. 6,
 ii. 10, iii. 13] ὦ̅[5].

STOPS, ETC.

Comma[5] period or colon[1] hyphen[3].

ACCENTS, ETC.

˘[3] ˙[3] ˊ[1] ˋ[3] ˋ̇[i. 1, ii. 3, iii. 3,
 iv. 13] ˋ̈[3] ˋ̅[5] ˋ̇̇[9] ˋ̈̈[7].

Number of distinct sorts:—lower-case 117;
 accents, etc. 12; stops, etc. 3. Total 132.

Number of simple and combined sorts
 (excluding separate accents or stops) 211.

βιβλιοπώλης· καὶ φιλομαθής.

βιβλιοπώλης· καὶ φιλομαθής.

βι. ἀνέρι βι φιλομαθές, εἴη ἡ κληνικὴς ἐραστὰ χαφωρῆς. φιλ. τί ποιή-
σωρ. εἰπέ μοι διὰ τὰ χροῦ. ὅτι μοι σχολὴ ἐστίν. βι. θεασόμενος τοι γαροῶ τ' αὐ-
τήν τῷ βίβλον. τῶν νεωστὶ, ὡς πορτοφί, τετυπωμένην. καὶ μετέπειτα ὠνησόμε-
νος. πολλῶν γὰρ ἐστὶ ποιικίλων καὶ παντοδαπῶν μεσῇ. ὁρᾷ δὲ τὸ πάχος αὐτῆς
ἐν τῷ μέθους. οὐδὲν γὰρ ἐστὶν ὅτε πᾶσι κληνικαῖς ὅτε παρὶ στρομοῖς ἐλογονεῖται
οὐτὼ δύσκολον καὶ σκοτίζον, ὅπως ὁ ἀχρεὺς ἀσάφει κληνικῇ ἐρμηνεύει γὰρ ὡς πλεί-
στα καὶ χρησιμώτατα. φιλ. οὐκ οἶσθα ὡς ἐμοὶ δοκεῖ τὸ πανταχὶ τετυπωμένη-
ν ὅτι πολλὰ λαλῶν πολλὰ ἐσφάλλεται. βι. οἶσα πῶς γὰρ οὐ. ἀλλ' ἡ κληνικὴ
τοῦ σου ὅσα πολυφωνία ἐνέχεται τῇ παροιμίᾳ. τὸν γὰρ περὶ πολλῶν καὶ διαφο-
ρῶν λέγοντα, πολλὰ καὶ λέγειν ἀνάγκη καὶ οὐκ ἀνέχεται τοῦ σου πάμπαν συντε-
μῶν ὀλίγοις περιείληφε καὶ τῶν μνηστῶν μάλιστα ἐμνήσθη. ὡς πορτοφί ἐκεί-
ναι ἐφ' ᾧ πανταχὶ τὰ βλαστήματα καθιζάνουσιν ἀφ' ἑκάστου δὲ τὰ χρήσιμα
λαμβάνουσιν, οὕτω ἐσσίδεις, ἐὰν πῶς οἱ σπουδαῖοι ἐν ὁμοιοῖσι τῶν ἀνδρῶν
κλήνῃ μὴ ἀποπειραν λαμβάνειν εἰώθασιν. ὅτι αὐτὴ δὲ ἡ κληνικὴ ἐκασμῶ
συλλέγειν φιλ. ἀνέκνη τὴν ἀπόμωδον καλῶς ἔφη. καὶ σοὶ χάριν ὁμολογῶ. ἡ
ἐν τῇ βίβλῳ τιμὴ πᾶσι ἐστίν. βι. χρυσῶν τειῶν. φιλ. λάμβανε δὲ δὸς
τῷ βίβλον.

 $\alpha \bar{i}$ [illegible]

PLATE XXI.

Ἑτυμολογικὸν μέγα, Venice, 1499.

[Only the sorts found in the facsimile are given.]

CAPITALS.

Ι[19] Τ[17].

LOWER-CASE.

α[1] ᾱ[16] ἀ[6] ἄ[19] ἁ[5] ἂ[1]
 ᾱ[15] αἰ[2] αἰ̇[3] αἰ̈[12] αἰ̉[12]
 ἀλλ[14] αν̇[1. 5, ii. 14] ἄν[18]
 ἀπο[18] ας[27] αὐ̇[5] αὐ̈[1. 6,
 ii. 16] αὐ̉[3] αὐτ[11].
 β[7].
 Γ[5] γάρ[1. 1, ii. 2] γέ[6] γῆ[4]
 γῆ[6] γίγνεται[4] γο[5] γω[4].
 δ[17] δα[25] δε[3] δέ[4] δη[23]
 δῆ[14] δι̇[24] δϊ[1] δο[18]
 δὺο[19].
 ε[1. 14, ii. 21] ἐ[3] ἐ̇[2] ἐ̈[5] ἐ̉[1. 1,
 ii. 9] εἰ[1. 9, ii. 17] εἰ̇[2] εἰ̈[8]
 ἐν[8] ἐν̇[10] ἐπ̇[18] ἐπ̈[6]
 ἐστ̇[28] εἶται[7].
 Η[2] ἥ[15] ἦ[7] ἡ[3] ἦ[2] ἡ[15]
 ἦ̇[2].
 Θ[1. 4, ii. 10].
 ι[1. 3, ii. 6] ἰ̇[7] ἰ̈[1] ι̉[1. 9, ii. 13]
 ϊ[1. 18, ii. 20] ἴ[14] ἴ̇[17].
 κ[1] κ̇[28] καλ̇[1. 6, ii. 12] κατ[4]
 κατὰ[6] κᾱ[3] κλ̇[24] κο[13]
 κὸ[18] κρ[18] κῶ[4].
 λ[5] λλ[7].

μ[20] μα[3] μενον[9] μετὰ[8]
 μο[1. 6, ii. 8] μό[20] μω[25].
 ν[1. 2, ii. 19].
 Ξ[1. 9, ii. 19, iii. 22, iv. 25].
 ο[1. 2, ii. 17] ὀ[9] ὀ̇[5] ὀ̈[1] ὀ̉[7]
 ὀ̈[3] ὀ̉[25] ὀ̈[6] οἶον[13] ονται[12].
 παρ[1] πας[2] πε̇[26] πει[14] πι[3]
 πλ[4] πο[1] πρ[7] πτ[3] πω[1].
 ρ[1. 5, ii. 6] ῥ[18] ῥ̇[18].
 σ[3] ς[1] σα[4] σαι[11] σαν[5]
 σαυ̇[11] σε[3] ση[7] σημαίνει[21]
 σθ[23] σι̇[1. 19, ii. 22] σο[11]
 σοῖ[17] στ[19] στη[21] στί[1. 8,
 ii. 18] στί̇[5] στο[1] συ[7] σω[27].
 τ[1. 1, ii. 1, iii. 3] τα[2] τὰ[2]
 τὰ̇[15] τε[10] τέ[7] τη[6] τῆ[5]
 τῆ̇[6] τῆν[5] τι̇[1. 3, ii. 3] τί̇[17]
 το[1. 4, ii. 8] τὸ̇[1. 1, ii. 2] τοῦ[9]
 τρ[16] τω[10] τῶ[4].
 υ[5] ὀ[7] ὀ̇[20] ὀ̈[1] ὀ̉[28] ὀ̈[4]
 ὀ̈[21] ὀ̉[10] υν[4] ὀν[8] υσ[7]
 υς[23] ὀς[6].
 Φ[1. 2, ii. 2].
 χὰ[16] χαῖ[18] χε[7] χο[5] χρ[2].
 ὠ[1. 1, ii. 9] ὦ[3] ὦ̇[14].

STOPS, ETC.

Comma[1] colon[1] period[2] paren-
 thesis[3] hyphen[11] apostrophe[20].

XXI. VENICE, Z. KALLIERGES, 1499.

ἀόριστος Δεύτερος infinītū secūdū
τυπῆναι verberatum fuisse

μέλλων πρῶτος futurum primū
τυφῆσθαι verberatum iri

πέλλων Δεύτερος futurū secūdū
τυπῆσθαι verberatum iam iam iri

μετόλιγον μέλλων paulo p^o futurū
τετύφῆσθαι verberatum esse

μέσος ἀόριστος πρῶτος mediū infinītū primū
τύφασθαι verberatum esse

μέσος ἀόριστος Δεύτερος mediū infinītū scdm
τυπῆσθαι verberatum fuisse

μέσος μέλλων πρῶτος mediū futurū primū
τύφῆσθαι verberatum iri

μέσος μέλλων Δεύτερος mediū futurū
τυπῆσθαι verberaturum esse

μετόλιγον μέλλων paulopost futurū
τετύφῆσθαι verberatum esse

participia	passiva	præs
μετοχικά	παθητικά	ἐνεστος

ὁ	τυπτόμενος	ille qui verberatur
τῶν	τυπτομένων	huius qui verberatur
ἡ	τυπτομένη	illa quæ verberatur
τῆς	τυπτομένης	huius quæ verberatur
τὸ	τυπτόμενον	illud quod verberatur
τῶν	τυπτομένων	huius quod verberatur

XXII. DEVENTER, R. PAFRAET, C. 1500?

Τρώεσσι τῷ παίδι χολούμενοσ' εἰπέ τε μύθορ·
 ὦ φίλοι, εἰ καὶ μόνος ἐγὼ κακὰ πολλὰ πέπονθα
 ἔκ βατραχῶν, ἢ μοῖρα κακὴ πάντεσσι τέτυκται,
 ἐμὶ δ' ἐγὼ δύστηνος, ἐπεὶ τρεῖς παῖδας ὀλέσσα.
 καὶ τὸν μὲν πρῶτον γε κατέκτανε ραπάζασα
 ἔχθιστη γαλῆν τρώγλησ' ἐκτοσθερ ἐλούσα.
 τὸν δ' ἄλλοι παλὶν ἀνδρὲς ἀπηνέες ἐς μόρον ἤξαν,
 καινοτέrais τέχναις ξύλινον δόλον ἐξευρόντες,
 ἢ ἡ παγίδα καλέουσι μύωρ ὀλετήρα ρέουσας.
 ὁ τρίτος ἦ ἀγαπήτοσ' ἐμοὶ καὶ μητέρὶ κενῇ,
 τούτου ἀπέπνιξε φῦσιν ἄναος ἐς βυθὸν ἄξας.
 ἀλλ' ἀγεθ' ὀπλισόμεσθα, καὶ ἐξελθόμεν ἐπ' αὐτούς,
 σώματα κοσμήσαντες ἐν εντέσι δαιδαλέοισι
 ταῦτ' εἰπὼν, ἀνέπεισε καθοπλίζεσθαι ἅπαντας,
 καὶ τοὺς μὲν ρεκόρυσσε ραῖησ' πολέμοιο μεμνηλῶς·
 κνημῖδας μὲν πρῶτα περικνημῆσιν ἐθήκαν.

β.ii,

XXIII. PARIS, GILLES DE GOURMONT, 1507.

σεις ἰδίας, τὰ ὅπως οὖν παρεμπύπτωτα εἰς οὐκ ἐ-
 πιβάλλουσαν θέσιν, ἐλέγχουσιν διὰ τῆς παρέαν-
 τῶν ἀκολουθίας. Τῶν τοῖνυν τοῦ λόγου μερῶν,
 ἃ μὲν εἰς ἀριθμούς καὶ γένη καὶ πτώσεις μετασχη-
 ματίζόμενα, ἃ δὲ εἰς πρόσωπα καὶ ἀριθμούς, ἃ δὲ
 μὲν ἐπιδεχόμενα τοιοῦτόν τι, ἃλλὰ καθ' ἕνα μό-
 ρον σχηματισμὸν ἐκφερόμενα. Ταῦτα δὲ μεταληφ-
 θέντα ἐξ ἰδίων μετασχηματισμῶν εἰς τὰς λεούσας
 ἀκολουθίας ἀριθμῶν ἢ προσώπων ἢ γεμῶν, τῇ
 τοῦ λόγου συντάξει ἀμα μεμείρισται εἰς ἐπιπλοκὴν
 τοῦ πρὸς ὃ φέρεσθαι ἕκαστον λεῖ. οἷον, εἰ οὕτω τυ-
 χοὶ πληθυντικὸν πρὸς πληθυντικὸν κατὰ τὴν τοῦ
 αὐτοῦ προσώπουν παρέμπωσιν, γράφομεν ἡμεῖς.
 μαρθάμονσιν ἄμθρωποι. Τὸ γὰρ ἐν μεταβάσει τοῦ
 προσώπου οὐ πάντως ἀπαιτήσιν τὸν αὐτὸν ἀριθ-
 μόν. ἔστι γὰρ φᾶμαι, καὶ τύπτουσι τὸν ἄμθρω-
 πον, καὶ τύπτουσι τοὺς ἀμθρώπους. κατὰ πᾶ-
 σιν. ὁ αὐτὸς δὲ λόγος καπὶ τῶν κατὰ γένος ἢ πᾶ-
 σιν ἢ προσώπων λαμβανομένων. ἔτι γὰρ καὶ τὸ ἐν
 μεταβάσει ἀδιαφορεῖ. ἡμῶν αὐτὸς ἀκροᾶται. καὶ
 οὐ μὲν ἐκτρέφει κατὰ τὴν αὐτὴν πτώσιν, ὑποπεσεῖ-
 ται εἰς τὸ αὐτὸ πρόσωπον. ἡμῶν αὐτῶν ἀκροῶν-
 ται. εἰ μὴ παρέμπτωσις συμλεσμικὴ τὸ πρόσωπον
 διαστήσει. ἡμῶν καὶ αὐτῶν ἀκροῶνται. κατὰ γέ-
 νος. ὡσαύτως δὲ καπὶ τῶν γεμῶν. οὐτοὶ οἱ ἄμ-
 θρες. τούτους τοὺς ἄμθρας, πάλιν γὰρ τὸ ἐν μετα-
 βάσει τοῦ προσώπου ἀδιαφορήσει καὶ κατὰ γέ-
 νος, καὶ κατὰ ἀριθμόν. τούτους γυνὴ ὕβρισεμ.
 κατὰ πρόσωπον. καὶ ἐπὶ προσώπων, ἐκείνος
 πατήρ ὦν ἐπιμελεῖται τοῦ παιδός, ἃλλὰ δὲ καὶ
 σοῦ καὶ ἐμοῦ. εἴπερ οὐ μὴ ἐπισυνβαίμοι τῇ
 λέξει τὸ τὴν διακρίσιν ἀνυάμεμον φανερώς

EPILOGUE OF KONSTANTINOS LASKARIS TO HIS TREATISE ON THE NOUN AND THE VERB.

Καὶ ταῦτα μὲν ὡς οἶόν τ' ἦν ἐπιμελῶς καὶ συντόμως ἀπὸ διαφόρων ἐρωτημάτων δι' ὠφέλειαν τῶν φιλομαθῶν εἴρηται. Ἐπεὶ δὲ ἡ ἡμετέρα πρακτικὴ γραμματικὴ ποικίλη τε τυγχάνει καὶ δύσκολος καὶ οἶόν τι πέλαγος ἀχανές, οὐ δεῖ τοὺς μαθητὰς μόναις ἀρκεῖσθαι ταῖς ἐπιτομαῖς ὥσπερ σκιαγραφίαις οὕσαι, ἀλλὰ μετ' αὐτὰς ἀναγινώσκειν πάντα τὰ παλαιὰ ἐρωτήματα Διονυσίου τοῦ Θρακῆς, Ἀπολλωνίου καὶ Ἡρωδιανοῦ καὶ Ἀρκαδίου, ἀφ' ὧν οἱ νεώτεροι ἀρυσάμενοι τὰ ἑαυτῶν συνέθηκαν ἐν Ἑλλάδι—Θεοδόσιος καὶ Χοιρόβοσκος, Μοσχόπουλος τε καὶ Πτωχοπρόδρομος καὶ ὁ καθ' ἡμᾶς Σχολάριος, καὶ πρὸ αὐτοῦ ὁ πρὸ ἡμῶν Μανουῆλος ὁ Χρυσολωρᾶς, πρῶτος ἐν Ἰταλίᾳ, καὶ ὁ καθ' ἡμᾶς Θεόδωρος ὁ Γαζῆς, καὶ ἄλλοι κατὰ καιροὺς καὶ πόλεις βραχύτατα συνθέντες Ἰταλοῖς χαριζόμενοι οἱ διὰ τε τὸ ἀλλόφωνον καὶ διὰ τὸ ἐν ἡλικίᾳ ὄντας συγῆν τοῖς οἰκείοις οὐ δύνανται διὰ τῶν παλαιῶν μαθεῖν τὰ ἡμέτερα. ταῦτά τοι οὐδεὶς αὐτῶν ποτὲ ἀκριβῆς γραμματικὸς γενέσθαι οἶός τ' ἐγένετο. δεῖ γὰρ χρόνων καὶ πόνου καὶ βίβλων οὐκ ὀλίγων ἵν' ἀκριβῶς εἰδέναι δυνηθῶμεν τὰ τῆς γραμματικῆς· αὐτοὶ δὲ ὀκνοῦντες καὶ βίβλων ἀποροῦντες, ἀπὸ μιᾶς ἐπιτομῆς τοῦ Χρυσολωρᾶ ἢ Θεοδώρου ἢ ἐμοῦ Κωνσταντίνου, τῆς ἐν Μεδιολάνῳ συντεθείσης πλατυτέρας καὶ ἐν Νεαπόλει συντεθείσης, διὰ τὴν τῶν μαθητῶν ῥαθυμίαν τὸ πᾶν εἰδέναι καταδοκοῦσιν, ὅπερ ἀδύνατον· τὸν γὰρ ἀκριβῆ γραμματικὸν πάμπολλα ἀναγνῶναι δεῖ, οὐ μόνον τὰ εὗρισκόμενα παλαιὰ καὶ νέα ἐρωτήματα, ἀλλὰ καὶ τᾶλλα διάφορα· περὶ τῆς συντάξεως τῶν ῥημάτων, καὶ Μαξίμου τοῦ Πλανούδη περὶ μεταβατικῶν καὶ ἀμεταβάτων, περὶ ἀνωμάτων, περὶ συνωνύμων, περὶ ἰδιωμάτων, περὶ τρόπων καὶ σχημάτων καὶ παθῶν· Τρύφωνος, Χοιροβοσκοῦ καὶ Πλουτάρχου, περὶ πνευμάτων, περὶ τοῦ μὴ σολοικίζειν καὶ βαρβαρίζειν, περὶ ὀρθογραφίας τὰ παλαιὰ καὶ Μοσχόπουλου τὸ πρῶτον, περὶ ποιότητος καὶ ποσότητος, περὶ τόνων τὰ τῶν ἄλλων καὶ Ἡρωδιανοῦ τὴν μεγάλην προσφῶδιαν ἐν βιβλίῳ εἴκοσι, περὶ τῶν τόνῳ διαφερόντων, περὶ μέτρων διάφορα, καὶ πάντα τὰ τοῦ Ἡφαιστίνωνος καὶ Τρικλίνιου, περὶ ἐκλογῶν τῶν λέξεων Ἀρποκρατίωνος, Πολυδεύκου, Θωμᾶ τοῦ Μαγίστρου καὶ Μοσχόπουλου,

τὸν Σουίδαν αὐτὸν καὶ τὰλλα λεξικά, τὸ Μέγα ἐτυμολογικὸν καὶ μικρόν· ἃ πάντα εὐρίσκονται, καὶ αὐτὸς εἶδον, ἔγνων καὶ ἐκτησάμην. ἐῷ τὰ θεωρητικὰ τέσσαρα βιβλία Ἀπολλωνίου τοῦ Δυσκόλου καὶ Ἀρκαδίου τοῦ Βυζαντίου, καὶ Μιχαήλου τοῦ Συγγέλου καὶ πατριάρχου τοῦ γλυκέως, καὶ ἄλλα ἀφ' ὧν ἀρυσάμενος ὁ σοφὸς Θεόδωρος κάλλιστα καὶ ἐλλογισμώτατα τὸ τέταρτον τῆς ἑαυτοῦ γραμματικῆς συνέθηκε (πάνυ τοῖς λογίοις ἐπωφελές, εἰ καὶ δύσκολον τυγχάνει καὶ Δηλίου κολυμβητοῦ δεόμενον, διὰ τὴν ἀπορίαν τῆς τέχνης), καὶ τὰλλα πάντα ἀναγκαῖα τὰς σκιὰς τῶν παλαιῶν περιέχοντα. ἔρρωσθε οἱ ἀναγινώσκοντες καὶ μέμνησθε, καὶ εἴ τι σφαλερὸν εἴρηται ἐπιδιορθώσαντες συγνῶτε· ἀνθρώπινον γάρ τὸ ἁμαρτάνειν. τὸ μὲν περὶ ὀνόματος συνετέθειτο ἐν Μεδιολάνῳ ὅπου καὶ τὸ πρῶτον πλατύτερον, ὃ συνετμήθη ἐν Νεαπόλει· τὸ δὲ περὶ συντάξεως δεύτερον καὶ τὸ περὶ ῥήματος τοῦτο καὶ ἄλλα ἐν Μεσσήνῃ τῇ τῶν λόγων ἑρμείᾳ, ἔτει ἀπὸ θεογονίας αὐξή'.

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ADDITIONS

- P. 70. Even in 1500 the type of the Homer does not wholly disappear, as it is found (in a very worn state) in the Hebrew Grammar of Agathius Guidacerus, printed at Rome without date, but during the pontificate of Leo X (1513-1521).
- P. 134. Milano. The statements here are too sweeping. The Dionysius Nestor printed by Pachel and Scinzenzeler in 1483 has a good supply of a small Greek type of somewhat unusual character. The β , λ , τ , and other letters (not the ρ) resemble those of fig. 25, but the δ and ν are like those of fig. 17. It is a 'cutting-out' fount, but few accents are used; of $\bar{u}$ however, there are actually two sorts. There is no closed (balloon) π or final ς .
- P. 141. The Greek type of Jean Philippe seems to be the same as that used by Thielmann Kerver in his Beroaldus, De felicitate, of 1 April 1500/1; this was printed for Jean Petit, and it is therefore probable that the Greek type of the Quintianus Stoa is identical with that of the Beroaldus. This fount of Philippe is reproduced by M. Claudin in the second volume of his *Histoire de l'Imprimerie en France*.